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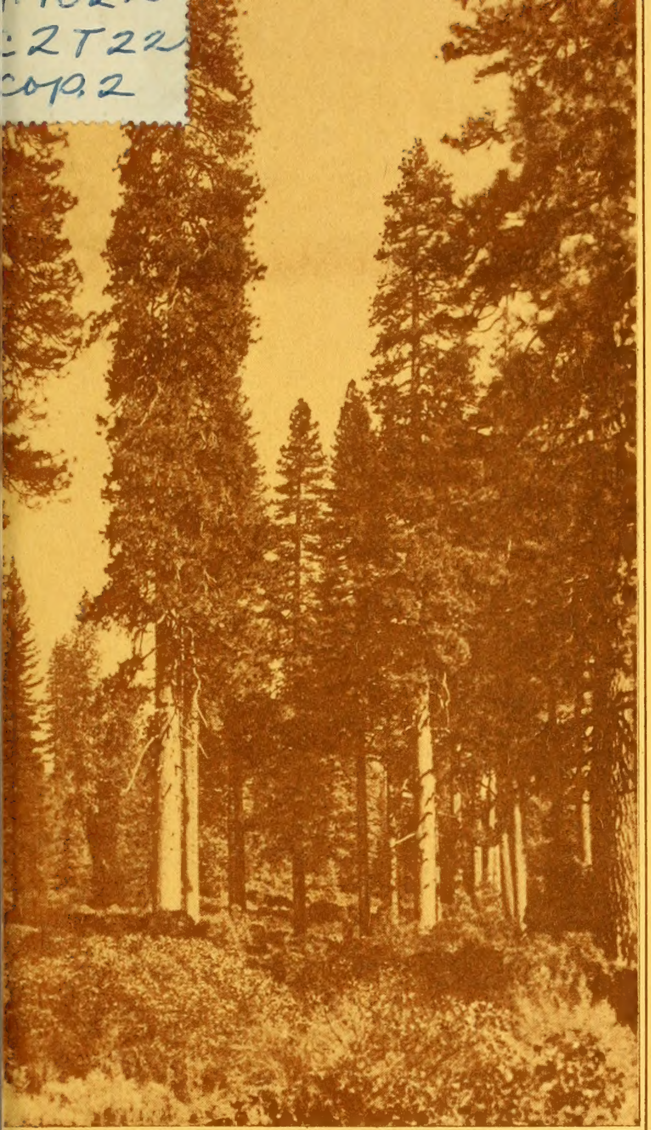

OWNERSHIP AND USE OF FOREST LAND IN THE COAST RANGE PINE SUBREGION OF CALIFORNIA

ADON POLI and HAROLD L. BAKER

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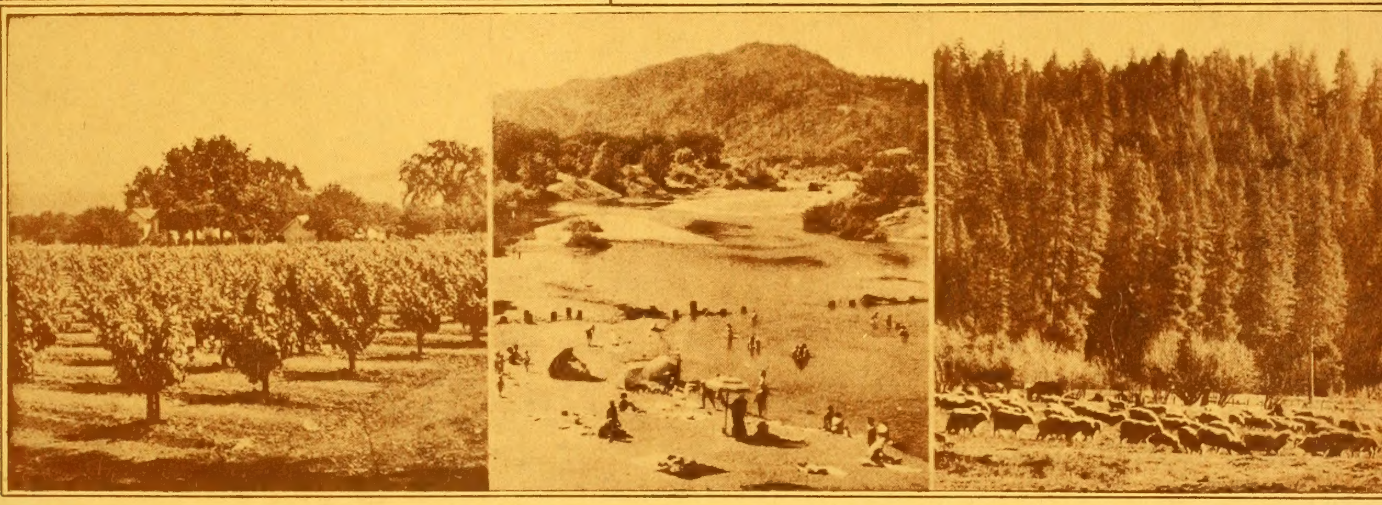

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OWNERSHIP AND USE OF FOREST LAND
IN THE COAST RANGE PINE SUBREGION OF CALIFORNIA

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U. S. DEPARTMENT OF AGRICULTURE

Forest Service, California Forest and Range Experiment Station

in cooperation with

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Stephen N. Wyckoff, Director
Berkeley, California

FOREWORD

Ownership as it relates to the use of forest land is still a relatively new field of research. However, it is generally recognized that knowledge of the type and size of forest land holdings and of the owners of this land is essential to persons or agencies concerned with forest policy and management decisions. This report presents detailed information on forest land ownership in the Coast Range Pine subregion of California.

This information was obtained from a cooperative ownership study established by the Forest Service and the Bureau of Agricultural Economics. The major purpose of this cooperative arrangement was to obtain in detail information pertaining to ownership of forest land and to integrate this information with timber-resource data obtained by the Forest Service under its nationwide Forest Survey. Combination of these data with other economic facts will provide a sound basis for formulating policies and plans for the management and use of forest land.

Detailed analysis of the correlation of these ownership facts with forest management practices actually found on the various ownership holdings in this study is the logical next step in this field of research. Such an analysis would include a detailed evaluation of protection from fire, insects, and disease, cutting practices, stand improvement, restocking, and other measures associated with management of forest land.

Some of the information concerning ownership in this release has been published in separate Forest Survey statistical reports for several counties in this subregion. These counties are Siskiyou, Trinity, and Lake. A report similar to this is contemplated for the Redwood--Douglas-fir subregion.

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OWNERSHIP AND USE OF FOREST LAND IN THE COAST RANGE PINE SUBREGION OF CALIFORNIA

SUMMARY AND CONCLUSIONS

The land area of the Coast Range Pine Subregion included in this study consists of 6,330,000 acres of forest, range, and farm-forest land. About half of this is commercial forest land which carries a net saw-timber volume of 62,554 million board feet.[1] Forty-four percent of the saw-timber volume is Douglas-fir; the rest is principally ponderosa and Jeffrey pine, white and red fir, and sugar pine.

In the northern part of this subregion much forest land is publicly owned and there are also large private holdings. In the southern part much of the forest land is privately owned, holdings are small, and the pattern of use is complex. About two-thirds of the land is operated directly by the owners principally for ranching, farming, timber operations, and recreation. Some land is leased to others, mainly to ranchers for livestock grazing, and some unused land is held by land speculators, future recreational users, and others.

The bulk of the commercial timber acreage and timber volume lies in the northern part of the subregion, extending from about Clear Lake northward to the Oregon-California boundary. Because of the ruggedness of the terrain and the difficulty of building access roads, much forest land there has remained in public ownership. Consequently, about 70 percent of the commercial forest land in this northern part is under the planned management of the United States Forest Service. Administration of such a large share of this land by one agency tends to minimize problems of land management that arise from ownership alone. But proper management of publicly owned commercial forest land involves other uses besides production of timber. Consequently, land-use analyses are necessary to decide whether maximum public benefits are obtained through timber production, wildlife management, range management, watershed protection, recreation, or a combination of part or all of these. Where timber management is designated as the best use, the forest resource should be managed so that it will yield the maximum volume per acre of the highest quality consistent with the productive capacity of the area and maximum net benefits to the public.

As a result of early grants of land to the railroads, certain parts of the northern section and particularly the national forests, still have remnants of a checkerboard pattern which consists of private sections of land intermingled mainly with sections of public land. This checkerboard pattern poses certain problems in the management of public as well as private land. This situation could be improved by continuing exchanges of land between the public and the private owners.

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[1] Log scale International 1/4-inch rule.

Timber operations constitute the major use of much of the private land in this northern part. Considerable land has been acquired by corporations and individuals who either now use or plan to use the land for timber operations. Much of this land is in large units with sufficient growing stock to support large forest enterprises. Owners of these large holdings have usually protected their timber from fire and other hazards. Some have hired foresters to assist them with the management of their land. These policies have led to reasonably good management of much of the forest land.

Although the southern part of the study area has much less commercial forest land than the northern part, the forests there are a significant part of the economy because they are easily logged and are close to markets. Ranching, farming, and recreation are major uses of the land. Production of timber is usually of secondary importance. The ownership and use patterns of land in this southern part are a great deal more complex than those of forest land farther north. Nearly all of the forest land here is privately owned and holdings are relatively small. Ordinarily independent, intensive management practices are not considered economically feasible. These small holdings lack sufficient growing stock to provide a continuous supply of timber. Sustained-yield forestry might be established on some of these small holdings if cooperative arrangements were made for logging, milling, and marketing of timber. Or, owners might harvest timber periodically by contracting for its removal and sale according to proper management practices.

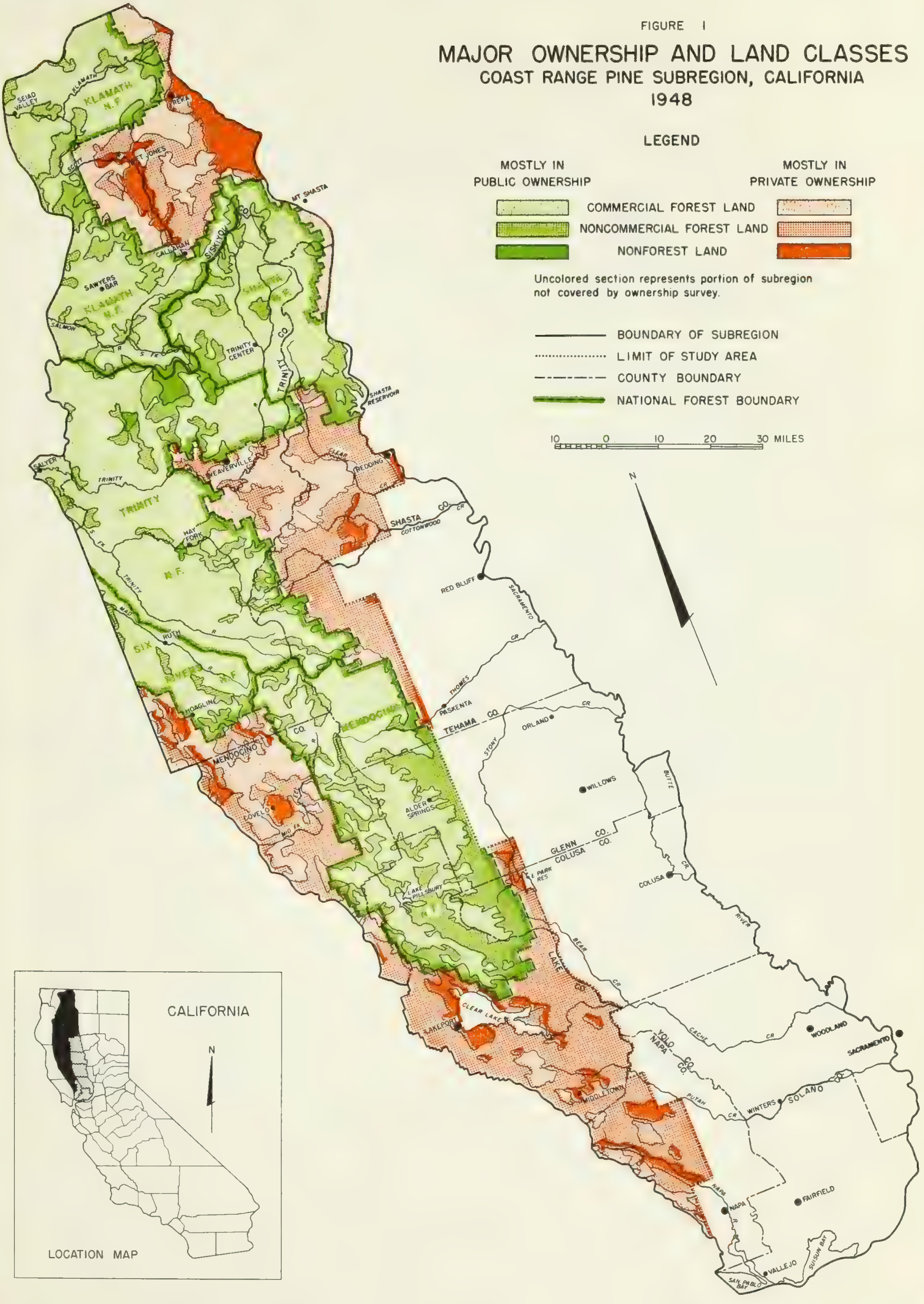
Because of the persistent demand for forest land for farm, recreation, residence, and other nontimber uses, the present complex pattern of small ownerships used largely for nontimber purposes is likely to continue, or it may even expand. Programs of forest management in this southern part, then, should differ materially from those used farther north. Management here must deal successfully with use of land in small holdings for timber production conducted as a secondary enterprise in combination with other major nontimber enterprises.

Forest inventory data show, throughout the subregion generally, a large volume in mature and over-mature trees in relation to the younger growing stock. This is particularly true of the public forest land, as well as much of the land of private owners. Although this timber is ready for harvesting, development of access roads is required to make it available for use. Present forest management policies of the Forest Service and of private timberland owners advocate development of access roads, especially in the northern part of the area.

Although about two-thirds of the commercial forest land is publicly owned, most of the lumbering has been done on commercial forest land in private ownership. Cutting of timber in this subregion, however, has generally proceeded more slowly than in other timber regions of the State. But it is generally believed that industrial activity in this area will increase materially in the future. The volume of timber produced has increased rapidly in recent years. Also, a relatively large number of private owners of timberland who are not now operating have bought land for future operations.

FIGURE I

MAJOR OWNERSHIP AND LAND CLASSES
COAST RANGE PINE SUBREGION, CALIFORNIA
1948



PHYSICAL AND ECONOMIC SETTING

The Coast Range Pine subregion of California, as defined by the Forest Survey, extends from the Oregon-California State line southward to the Sacramento-San Joaquin Rivers Delta. It includes the eastern part of the Coast Range up to the Sacramento River. The gross area is 9,864,000 acres. About 3,534,000 acres, however, are agricultural and other intensively developed land in western Sacramento Valley. The ownership aspects of this 3.5 million acres were not considered pertinent to this study, which deals principally with forest land. Only the 6,330,000 acres of forest, range, and farm-forest land west and north of the more-or-less strictly agricultural part of the Sacramento Valley are considered in this ownership survey. All of Trinity and Lake Counties, and portions of Siskiyou, Shasta, Tehama, Mendocino, Glenn, Colusa, and Napa Counties are included. All comments and figures presented in this report relate only to this area of 6,330,000 acres (fig. 1).

The climate over much of the area is relatively mild. It is most severe in the northern higher mountains, which attain a maximum of 9,038 feet, and mildest in the southern lower areas, which drop to sea level. Precipitation ranges from less than 20 inches in the drier southern areas to more than 50 inches in the northern zone of heaviest rainfall. Some snow falls along the higher ridges but seldom stays long.

Principal natural resources of the study unit are the dense stands of timber, many of which are composed primarily of old-growth trees; the large areas of grass and woodland-grass which support a thriving livestock industry; the remaining deposits of gold, copper, quicksilver, and other metals; the recreational values of the forest wilderness, the hunting and fishing grounds, and the excellent climate; the agricultural lands of Lake and Napa Counties; and the many large streams which provide valuable water for irrigation, fish and other wildlife, industrial and domestic uses, hydroelectric power, and improved navigation, through the development of multipurpose facilities such as Shasta Dam.

Forest land constitutes 92 percent (5,806,000 acres) of the total land in the study area. Noncommercial forest land2/ amounts to 2,604,000 acres. This noncommercial forest land is covered mostly with woodland-grass and chaparral vegetation and is useful for grazing, watershed protection, and recreation. Part of this is land at the lower elevations in the western foothills of the Sacramento Valley, and part is the inland hill land from Clear Lake southward to the Sacramento-San Joaquin Rivers Delta. The major part of the forest land, 3,202,000 acres, is classified as commercial forest land. Most of this productive forest land lies at higher elevations in the western and northwestern parts of the subregion. Mixed stands of pine, Douglas-fir, and true firs are found here. Some pure stands of each of these species are also found.

2/ For explanation of terms used in this report see section entitled: Definition of Terms, page 41.

Most of the commercial forest land is concentrated in the northern section. Trinity County alone contains 42 percent. Trinity County and the part of Siskiyou County in the study area, together contain more than two-thirds of the total acreage of commercial forest land. The major part of this land is publicly owned and is primarily in national forests.

Nearly 85 percent of the commercial forest land is occupied by saw-timber stands (table 1). These stands, which are on lands rated mostly good or better in timber producing capacity, contain much mature timber which is ready for harvesting for lumber, plywood, and other high quality timber products.

According to the 1948 inventory of forest resources,[3] the commercial forest land of the Coast Range Pine subregion carried an estimated net saw-timber volume of 62,554 million board feet.[4] Forty-four percent of this was Douglas-fir (table 2). An additional 52 percent was composed of ponderosa and Jeffrey pines, white and red fir, sugar pine, and western white pine. Much of this timber was in mature and overmature trees larger than 41 inches in diameter.

The timber situation is always changing. Trees are continually growing and being removed. Estimates made in 1948 showed that more wood was being added to the resource by growth than was being removed through logging and natural mortality. Net growth of saw timber exceeded the volume removed as timber products and logging waste by 86.5 million board feet, or 25 percent.

About 50,000 persons live in the study area. Many of these people, particularly those in the northern part, are original settlers or descendants of original settlers who were attracted to the region by early mining, agriculture, lumbering and related activities. A few descendants of original California Indians live on several small reservations and on individual allotments scattered throughout the subregion.

Lumbering and livestock ranching are the main industries of the area; mining is a secondary activity. Cultivated agriculture and recreation are also of economic significance, principally in the more accessible southern part, and especially in Napa and Lake Counties.

There were 108 active sawmills in the study area in 1948. The three largest of these produced about 24 percent of the lumber output of the subregion. In contrast, the smallest 63 mills produced only 6 percent. Other timber operations included two veneer and plywood producers, who obtained most of their raw material from outside the subregion, and several small operators, who produced minor quantities of fuelwood, fence posts, poles, mine timbers, and other products.

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[3] For detailed statistics from this inventory, forest survey procedure, and definition of terms, see: Forest Statistics for the Coast Range Pine Subregion in California. Forest Survey Release No. 12; 1-48, California Forest and Range Expt. Sta., Berkeley, April 1952.

[4] Measured by International 1/4-inch log rule.

Table 1.- Commercial forest land by timber type and by stand-size class, Coast Range Pine Subregion, California, 1948

Timber type	Total	Old growth saw-timber stands	Young growth saw-timber stands	Pole-timber stands	Nonstocked
	Thousand acres				
Pine--Douglas-fir--Fir	2,423	1,114	958	122	229
Douglas-fir	476	230	156	21	69
Pine	213	53	115	17	28
Fir	90	39	38	5	8
All types	3,202	1,436	1,267	165	334
Percent	100.0	44.8	39.6	5.2	10.4

Table 2.- Net volume of live saw timber on commercial forest land by species and by stand-size class, Coast Range Pine Subregion, California, 1948

Species	Total		Old growth saw-timber stands	Young growth saw-timber stands	Pole-timber stands	Non-stocked
	Million bd. ft.	Percent	Million bd. ft.			
Douglas-fir	27,296	43.6	17,592	9,471	179	54
Ponderosa & Jeffrey pine	15,538	24.8	8,631	6,424	105	378
True firs	10,340	16.5	5,629	4,488	181	42
Sugar pine	6,354	10.2	4,521	1,730	87	16
Other softwoods[1]	1,865	3.0	939	785	1	140
Hardwoods[2]	1,161	1.9	552	545	17	47
All species	62,554	100.0	37,864	23,443	570	677
Percent		100.0	60.5	37.5	0.9	1.1

[1] Includes western white pine, incense cedar, mountain hemlock, lodgepole pine, California nutmeg, digger pine, juniper, knobcone pine, and western yew.

[2] Includes black oak, madrone, canyon live oak, tanoak, alder, chinquapin, Garry oak, maple, Coast live oak, dogwood, willow, laurel, Douglas oak and other hardwood species.

The contribution of the lumber industry to the economy of the area is indicated by the jobs and wages provided to the woods and mill workers and the value of products produced. Because the boundary of the study area does not follow boundaries of political subdivisions, published figures were not available for these items. Estimates were computed and are discussed here.

Based on a production of 345 million board feet of lumber in 1949, the number of wage earners actually engaged in logging and milling operations was estimated at 2,760. Including the families of these workers, those directly dependent upon the timber industry number about 9,000. This is 18 percent of the estimated total population of the study area.

Many others provide the lumber industry populace with goods and services. These persons operate independent enterprises but they do not produce commodities or render services marketable outside the subregion. They are supported either partially or totally by persons engaged in lumbering and related industries and are therefore economically dependent upon the timber industry. Including workers and their families, this service population has been estimated at 18,000 persons.

Thus, 27,000 people are directly or indirectly dependent on the timber industry. This is approximately half the estimated total population of the study area.

In 1949, the annual payroll of persons engaged in lumbering operations was estimated at about $10,000,000. No estimate was made of the annual income of the service populace. The value of products was difficult to determine because prices vary so markedly with tree species and kind and quality of product. Using average prices, however, the total value of forest products (f.o.b. mill) produced in 1949 was estimated at $29,000,000.

Lumbering is expected to grow in importance in the Coast Range Pine subregion. The favorable growth-drain relationship combined with the large quantity of mature timber available is expected to provide an opportunity for industrial expansion which can be permanent under good management. Movement of new industry into the subregion and expansion of present industry already are in progress. These changes will affect the type and size of ownership patterns of the study area. Forest land will be bought and consolidated into larger holdings to provide for expansion. Part of the timberland acquired for new operations will be owned and operated by nonresident owners who are seeking timber supplies for their present operations or for new supplementary mills in the study area.

In 1948 there were some 675 range livestock farming enterprises in this area. These ranches are part of a major industry which contributed materially to the State's production of beef. Other farm enterprises numbered almost 2,000. These were largely fruit, vineyard, dairy, poultry, general farms, and farms producing grains and other field crops.

Mining has been an active industry here since early "gold rush" days. Many millions of dollars' worth of gold have been removed--principally from Trinity, Siskiyou, and Shasta Counties. Gold dredging continued on a relatively large scale up to the beginning of World War II when mining operations of this type were curtailed. Considerable copper also has been mined, especially in Shasta County. Quicksilver mines have operated in Lake and Napa Counties for many years.

Practically the entire area of study is used for many forms of recreation. The numerous streams and lakes, the rugged, picturesque mountains, and the wooded wilderness attract people from all parts of the country. The importance of recreation is exemplified by the fact that more than 900 owners of rural properties have acquired land here exclusively for recreational purposes.

OWNERSHIP IN RELATION TO USE OF LAND

Early California Indians used the small inland valleys and adjacent country principally as hunting and fishing grounds. They did not stay in the same settlements indefinitely, but moved about in search of game and other food. They had little or no direct ties to the land itself. Private ownership of land as we understand it was unknown to these people.

The Spanish influence, which extended to large sections of California, reached Napa County and the southern part of Lake County. Several large tracts of land were granted to early Spanish settlers. These Spanish grants constituted one of the earliest forms of private ownership in this area. They contained some of the choicest farm and range land which was then used principally for livestock ranching--the preferred agricultural industry of the Spanish owners. Later, as the American settlers arrived, land in these grants was subdivided and sold, but the irregular pattern of ownership formed by these early "ranchos" is still a part of the boundaries of property in these counties.

With the discovery of gold in the 1850's, miners began to move in to search for gold. Many mining claims were staked out and patented, principally in that section of the study area extending from Tehama northward into Siskiyou County. Shasta and Trinity Counties were prominent mining centers. Most of the small, irregular ownership tracts found in the property records here originated as early mineral claims. Some of these former mineral tracts are now used as small farms, recreational holdings, and residences.

The influx of population during and after the "gold rush" created demand for food products. This local demand for food and the general decline in profit from gold mining gradually shifted interest from mining to ranching and farming. People then began to take up land for ranches and farms. Much of the privately owned land, especially that obtained by persons who wanted to farm, was originally acquired through the provisions of the Preemption, Homestead, and Timber and Stone Acts. These general land laws operated under the principle that the forest resources could be developed most economically in private ownership and in small units, as in agriculture. However, through circumvention of these laws and inability of settlers to "make a go of it" on their holdings, lumber companies were able to obtain large acreages of timberland. Thus the net effect of the land laws in certain forest areas was a pattern of ownership opposite to that intended.

In contrast to these general land laws, land grants to encourage the construction of transportation facilities and to help the State educational programs resulted in the disposal of public domain in large tracts. As settlement in the west expanded, the people needed better transportation facilities to carry supplies and to ship their products. To encourage the development of railroad facilities, the Federal Government granted forest and other land to the railroads. Considerable forest land in this area was granted in this way. Consisting of alternate sections interspersed with government and other private land, these grants formed a checkerboard pattern of ownership. Although some of this land was sold later to private owners, much of this checkerboard pattern remains in the northern part of the study area, and particularly in some of the national forests.

Increased settlement also created a need for schools. To help finance the development and maintenance of schools the Federal Government gave the State some forest land. Although most of this school land was subsequently sold, a few scattered sections remain in State ownership.

As timber operations began to develop, considerable land was consolidated into some of the large ownership units found here today. Acquisition of these large tracts was mainly by purchase, through the use of land scrip, and by exchange. Nearly all of the Federal land that was not otherwise appropriated for private or public use has gone into national forests through presidential proclamations issued since 1905. A relatively small acreage has been set aside for the Indians, and some land remains as unappropriated and unreserved public domain. Although considerable land went into private ownership through various forms of land acquisition and public land disposal, much has remained in public ownership. A great deal of the land in the northern part of the area is quite rugged and because of the difficulty and high cost of building roads is still inaccessible. This discouraged private acquisition of large areas of land when settlers were obtaining land in California. The ownership pattern here today, then, is a reflection of many transfers, subdivisions, and consolidations of ownerships that have occurred through the years since the original land patents were granted by the Government.

Public Ownership

As might be expected from the history of the subregion, almost three-fifths of the area covered by this ownership survey is public land. This public land includes 3.7 million acres, 2 million of which are classed as commercial forest land (table 7 and fig. 2). Altogether, 8 classes of public land ownership are represented, but most public land is in national forest holdings of the Federal Government.

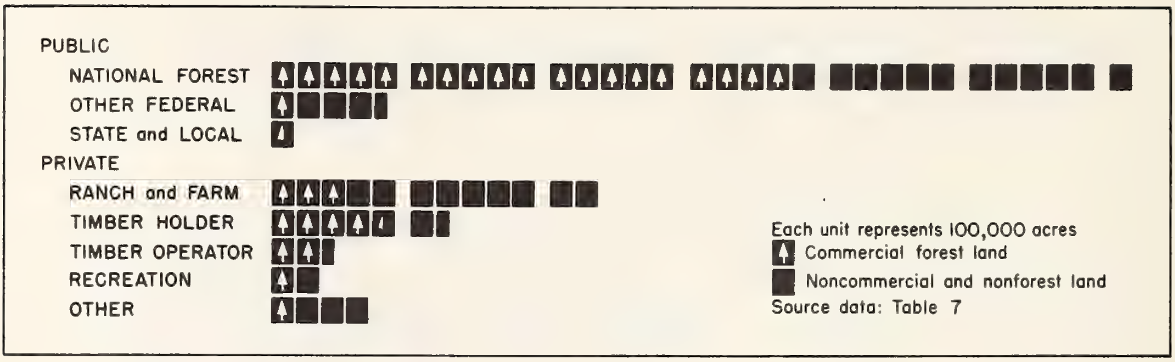

Figure 2.- Total land acreage by type of owner.

National Forests

Five national forests--the Klamath, Shasta, Six Rivers, Trinity, and Mendocino--lie partly or wholly within this subregion. They contain about 85 percent of the publicly owned land and nearly 60 percent of all the commercial forest land in the study area. Administration of such a large acreage of productive forest land by one agency minimizes the problems of land management that arise from ownership alone. Continuous single ownership of one large block of forest land provides more opportunity for establishing and maintaining a management policy for forest land than does a complex pattern of many small independent ownerships for a comparable area. Growing timber as a crop is a long-time process, and plans for management must be made for, and carried out over a long period of time. There is some assurance that this will be the case with public ownership as there is little likelihood of change in ownership. Also, in the process of growing trees there may be periods of high costs of protection but little or no income. Public agencies are generally in a better position to withstand long periods without returns and to maintain reasonable management and protection on these lands.

Although the national forests contain 93 percent of the saw-timber volume on the publicly owned commercial forest land and 64 percent of the subregion's saw-timber volume (fig. 3 and table 11), not all of this timber is accessible to cutting. To make it available access roads must be developed. Also, not all of this volume is of the highest quality for timber products because many of the best timber stands and forest lands passed into private hands before the national forests were established.

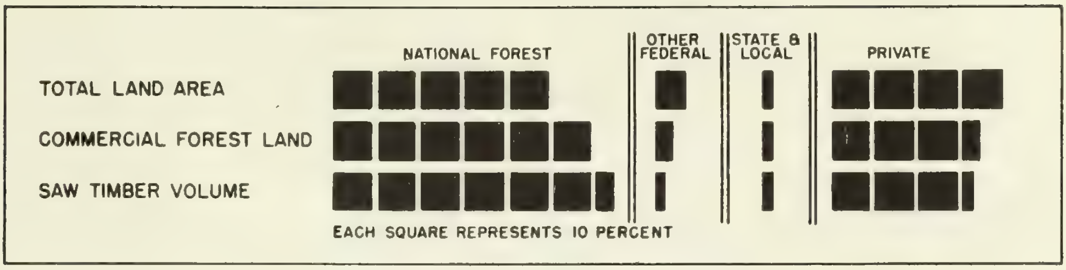

Figure 3.- Percentage of total land area, commercial forest land, and saw-timber volume by major types of owners.

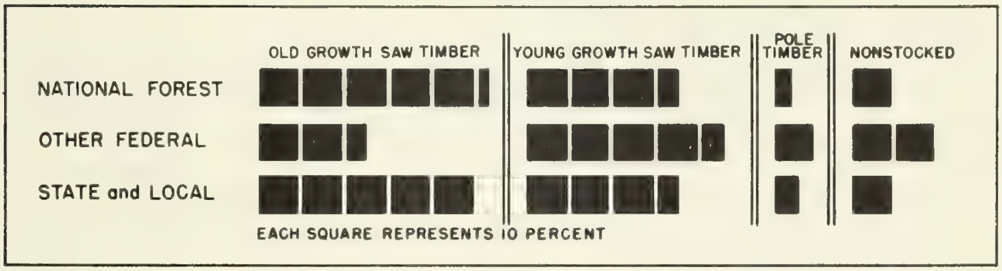

Figure 4.- Percentage of timberland acreage held by public agencies, by stand-size class.

Forty-three percent of the saw-timber volume in the subregion is in the old-growth saw-timber stands on the national forests. Much of this mature and overmature timber is subject to possible loss through insects and disease. This timber should be harvested as economic conditions permit to reduce this loss and place the growing stock in better condition for continuous production of timber.

Management of publicly owned commercial forest land usually involves uses besides timber production such as production of wildlife, grazing, recreation, and watershed protection. Consequently, land-use analyses are necessary to decide the single use or combination of uses that will provide the maximum public benefits. Where timber management is designated as the best use, the forest resource should be managed so as to provide a continuous annual or periodic crop in approximately equal or increasing amounts consistent with the capacity of the land for growth of timber.

Other Public Agencies

Other federal agencies own about 13 percent of the public land. Most of this land is vacant, unappropriated, and unreserved public domain administered by the Bureau of Land Management of the Department of the Interior; the remainder is reserved for use by the few Indians who live there. Because the bulk of this land does not produce timber, commercial forest land in other federal holdings is only about 4 percent of the total for the subregion. Only about a fourth of this acreage of timberland has old-growth saw timber (fig. 4). The scattered nature of these timber holdings, particularly those in public domain, creates problems of management on these and adjacent ownerships. For example, many of these holdings are too small and too scattered to permit efficient management of the timberland. Others are surrounded by lands of other owners so that special right-of-ways are necessary to get into these tracts.

About 2 percent of the public land is former private land deeded to the State for nonpayment of taxes. Approximately two-thirds of this is commercial forest land. Because much of this land will produce timber, it will probably return eventually to private ownership under existing State and local policies of disposing of tax-deeded land.

Land in other State, county, and municipal ownerships amounts to only a small percentage of the total acreage and most of it is chiefly noncommercial forest land.

Private Ownership

Private ownerships have been classified into 9 types and 10 sizes (tables 3 and 12). The classification by type differentiates particularly between (a) corporate and individual ownerships, (b) operating and nonoperating owners, (c) farm and nonfarm properties, and (d) recreational and nonrecreational holdings. Although absolute figures are given to designate the number of ownerships and of owners in the various classifications presented throughout this report, these figures are in reality estimates derived by a line sampling procedure used in this survey and described in detail elsewhere.5/ The area covered by this ownership survey is sufficiently large to permit a reasonably accurate estimate of the true situation from line sampling.

In 1948, 42 percent of all the land in the area was privately owned by 5,698 individuals and agencies. Of this number, 2,589 owners had commercial forest land. The privately owned acreage of commercial forest land amounted to a little more than a third of the total (tables 8-11).

5/ Hasel, A. A. and Adon Poli. A New Approach to Forest Ownership Surveys. Land Economics 25(1): 1-10. February 1949.

Poli, Adon. Conducting a Survey of Ownership of Forest Land in California. Agricultural Economics Research 4(1): 8-12. January 1952.

Table 3.- Percentage distribution of number of holdings, privately owned land, and privately owned commercial forest land by type of owner, Coast Range Pine Subregion, California 1948

Type of owner	Holdings			Total land area		Commercial forest land
	Number	Pct.	Av. size acres	Thousand acres	Pct.	Pct.
Timber operating company	27	0.5	7,407	200	7.8	15.5
Timber holding company	27	0.5	20,667	558	21.7	34.2
Timber operating individual	52	0.9	1,000	52	2.0	4.0
Timber holding individual	187	3.3	364	68	2.6	4.7
Range livestock farming company	6	0.1	6,667	40	1.6	1.3
Range livestock farming individual	669	11.8	1,184	792	30.7	17.6
Other farmers	1,966	34.5	185	363	14.1	6.6
Recreational property owners	926	16.2	194	180	7.0	6.6
Other classified owners	1,832	32.2	176	323	12.5	9.5
All classified owners	5,692	100.0	453	2,576	100.0	100.0
Unclassified	6	-	-	64	-	-
All owners	5,698	-	-	2,640	-	-

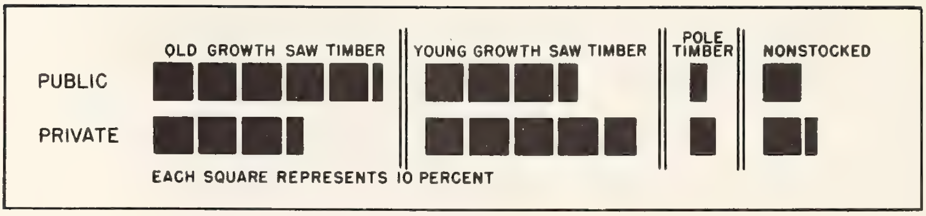

Figure 5.- Percentage of timberland acreage in public and private ownership by stand-size class.

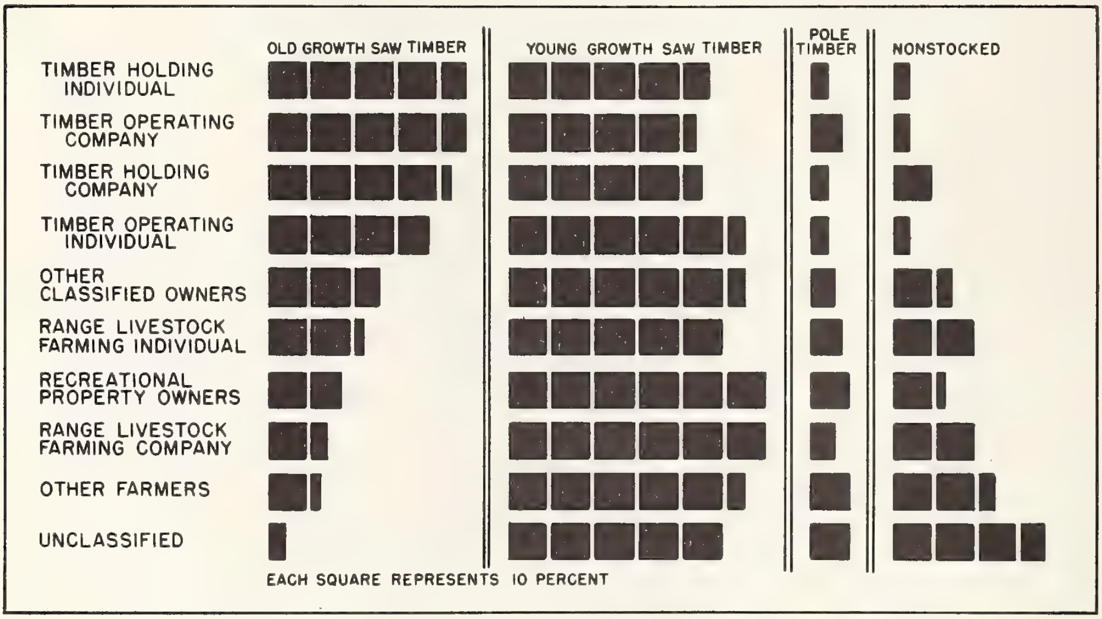

Figure 6.- Percentage of timberland acreage in each type of private ownership by stand-size class.

Although about two-thirds of the commercial forest land in the study area is publicly owned, most of the lumbering has been done on the 1,129,000 acres in private ownership. The proportions of old-growth and young-growth saw-timber areas in public and private ownership (fig. 5) show this difference in rate of use. Old-growth saw-timber stands occupy 51 percent of the publicly owned commercial forest land and young-growth saw-timber stands 35 percent. The percentages for privately owned commercial forest land are 33 and 48 percent, respectively. Of course, the fact that there is more old-growth saw timber on public lands can be attributed in part to better fire protection by some public agencies.

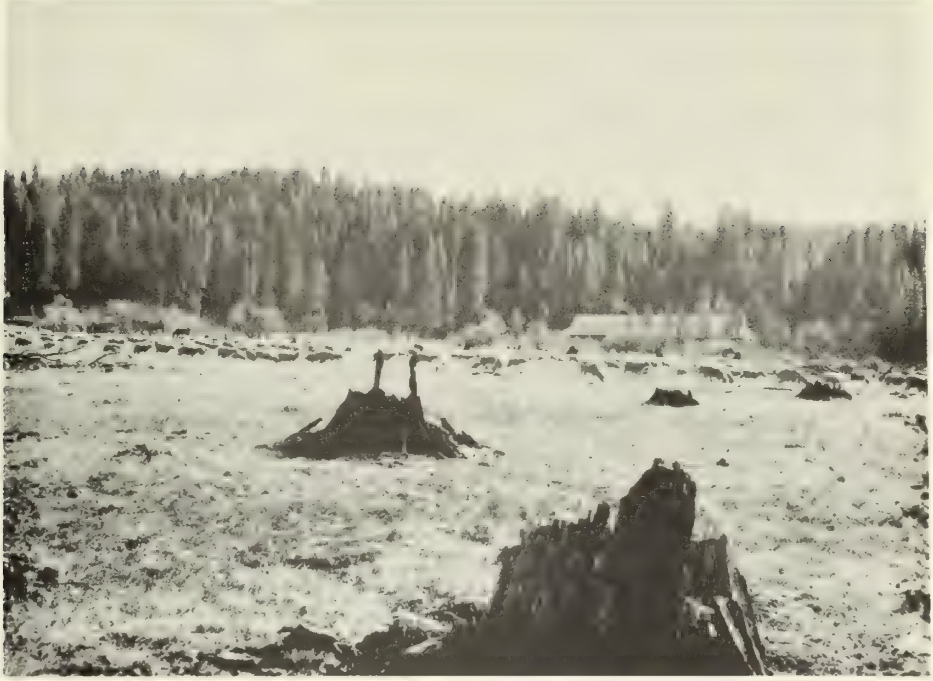

Figure 7.- Conversion of commercial forest land to range use, as illustrated by this scene, has occurred on land of certain classes of private owners--particularly ranchers and farmers. Large stumps in this field are remnants of ponderosa pine trees.

Some types of owners have cut over their land more than others (fig. 6 and table 9). Timber operating individuals have done much cutting. Slightly more of the privately owned commercial forest land is occupied by pole-timber stands or is nonstocked than that in public ownership. Some types of private owners have larger pole-timber and nonstocked areas than others (fig. 6 and table 9). Range livestock farming companies and individuals have large areas of nonstocked commercial forest land where burning and cutting have been used in attempts to convert this land from timber to grazing.

The distributions of timber stands found on some private holdings have not resulted from cutting and burning by present owners. Some recreational and residential property owners have been able to acquire only cut-over or burned-over commercial forest land or they tried to buy only such lands for these purposes. Farmers, other than livestock ranchers, and other classified owners have intentionally sought out cut-over or burned-over areas for their uses or have found cutting and burning of their commercial forest land to be a prerequisite for their desired use.

Management of privately owned commercial forest land on a continuous basis is complicated by variations in length of tenure and in type and size of ownership. Private ownership does not always provide the stability of ownership and management policy required for production of a timber crop. For successful management both tenure and policy must be long-run in scope. Growing timber as a crop under sustained-yield forestry[6] requires a long-run investment in timber and in operating equipment which to date only a few of the private operators have made. Most of the private operations are designed to yield the maximum short-run returns to the operator.

With some types of private ownership, forestry is secondary. This is true of range livestock, farm, and recreation holdings, the major part of which are not generally commercial forest land. The place of forestry on such holdings is a problem that merits consideration. Grazing and production of timber are both possible on some of these lands. Also under certain forms of harvesting, production of timber could be conducted on private recreation holdings without destroying their recreational values. A careful land-use study might be made of areas in which alternate uses or combinations of uses are feasible, to determine the most economic use that can be made of the land.

Types of Owners Who Own Forest Land

Of the 5,692 classified[7] owners of private land in the study area in 1948, 27 were timber operating companies engaged in commercial logging and milling of timber as a major enterprise. These companies owned 8 percent of the 2,576,000 acres of classified privately owned land. But, because most of this land (88 percent) was commercial forest land, it incorporated 16 percent of the privately owned commercial forest land (table 3 and fig. 8). This land was used primarily for production of timber and timber products.

Another 27 owners were timber holding companies that were keeping timber for future commercial timber operations. These were investment companies, out-of-state lumber manufacturers, and other private organizations holding timber primarily for future use either for themselves or to sell to others. This group of owners had next to the largest share (22 percent) of the total acreage of privately owned land and the largest share (34 percent) of the privately owned acreage of commercial forest land. About 69 percent of their land was commercial forest land. Part of this land was used to produce timber and part was leased for grazing livestock.

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[6] Sustained-yield forestry is defined as the continuous production of annual or periodic forest crops in approximately equal or increasing amounts on a given area of forest land.

[7] Six of the 5,698 total owners were unclassified as to type because of insufficient information.

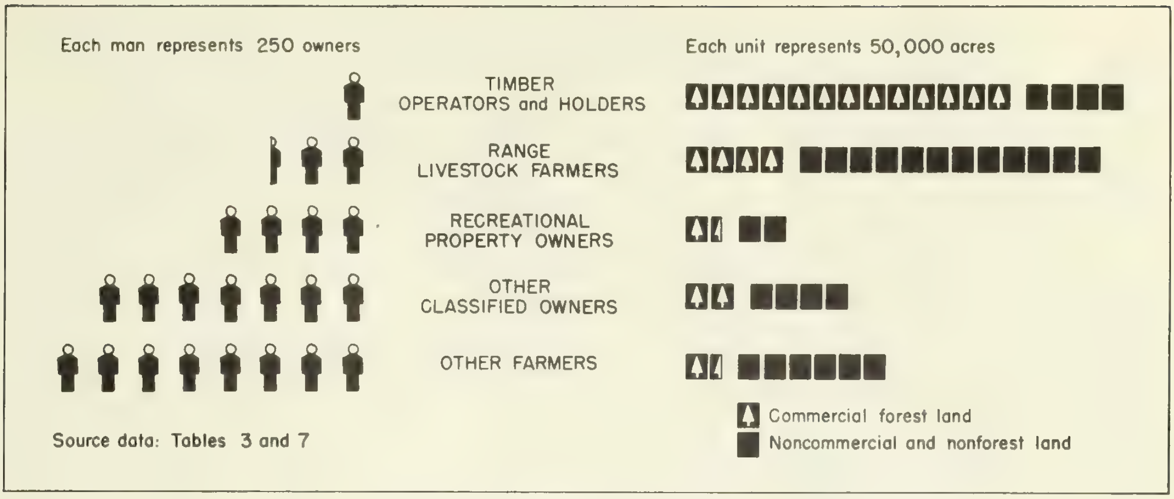

Figure 8.- Number of private owners and acreage owned by type of owner.

Fifty-two timber operating individuals were carrying on commercial timber operations of various kinds as a major business. These individual operators owned only 2 percent of all the privately owned land. But this land contained a high proportion (87 percent) of commercial forest land, amounting to 4 percent of the total for the subregion. Their operations probably extended over a larger acreage of timber through logging contracts with owners of other timberland. Most of this land was used for timber operations.

One hundred and eighty-seven timber holding individuals kept timber principally for future commercial operations, either for themselves or to sell to others. This group consisted of a variety of individuals--business men, retired persons, mechanics, tradesmen, professional persons, farmers, housewives, white-collar workers, and a few others. These individuals held only 3 percent of all the privately owned land, but it consisted of a relatively high proportion (78 percent) of commercial forest land. Included in these holdings was 5 percent of the private commercial forest land. Most of this land was left idle. A small proportion was used for timber operations and for ranching.

Six range livestock farming companies carried on range livestock ranching operations as a major business. They controlled nearly 2 percent of the privately owned land and 1 percent of the privately owned commercial forest land. About 38 percent of their land was commercial forest land. This land was used mainly for grazing livestock.

Approximately 669 owners were range livestock farming individuals whose major enterprise was range livestock ranching. These owners controlled the largest share (31 percent) of the privately owned acreage, and the second largest share (18 percent) of the commercial forest land. A fourth of the land they held was commercial forest land. This land was used principally to graze livestock.

The largest group of private owners (1,966) consisted of other farmers engaged in types of farming other than range livestock ranching as a major business. These were owners of fruit, poultry, dairy, general farms, and other farms growing cultivated crops. They held the third largest share (14 percent) of the total acreage of private land, a fifth of which was commercial forest land. This amounted to 7 percent of the privately owned acreage of commercial forest land. This land was used principally for farming. Much of the commercial forest land remained idle.

There were 926 recreational property owners who held land mainly for recreational use. This group included owners of resorts, dude ranches, and summer cottages, and owners of land acquired for hunting, camping, and other forms of recreation. These owners held 7 percent of the privately owned land, 41 percent of which was commercial forest land. Included was 7 percent of all the private commercial forest land. Most of this land was used for recreational purposes. Some was left idle.

About 1,832 were other classified owners who could not logically be placed in any ownership group previously described. In this class were owners of land held for residential or business purposes only, mining claims, watersheds, and reservoir sites; purchasers of idle non-forest land for future resale; and miscellaneous owners who held land for various other reasons. These owners had 13 percent of the private land, a third of which was commercial forest land. About 10 percent of all the privately owned commercial forest land was owned by this group. Much of this land remained idle. Some was used for residential and for agricultural purposes.

Size of the Forest Land Holdings

Private ownerships were grouped into 10 size classes ranging from holdings of less than 180 acres to those of 50,000 acres or larger (tables 12-16). For the study area as a whole, most ownerships are in the small size classes. Relatively few are in the larger groups. Considerable land is concentrated in the few large ownerships (figs. 9 and 10). Although the size data for the whole area tend to follow the expected pattern of distribution, the northern and southern parts vary noticeably as to the pattern of size. The dividing line is roughly the southern boundary of the Mendocino National Forest. Private ownerships in the northern part, particularly in Trinity and Siskiyou Counties, are much larger on the average, than those in the southern part, such as Lake and Napa Counties.

Intensity of use has apparently helped to establish differences in size patterns within the area. For instance, in the entire study area, 22 percent of the privately owned land is in holdings of 50,000 acres or larger. In Trinity County where land is least intensively used, these large holdings include 44 percent of the land. In Mendocino County, where land is within a more reasonable distance of users from the San Francisco Bay area, only 12 percent is in 50,000 acre holdings or larger. In Napa and southern Lake Counties, where land is most intensively used for farming and recreation, no land is in such large holdings; in fact, there no holdings are larger than 19,999 acres.[8]

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[8] Details pertaining to size of ownership holdings are given in Forest Survey Releases for separate counties.

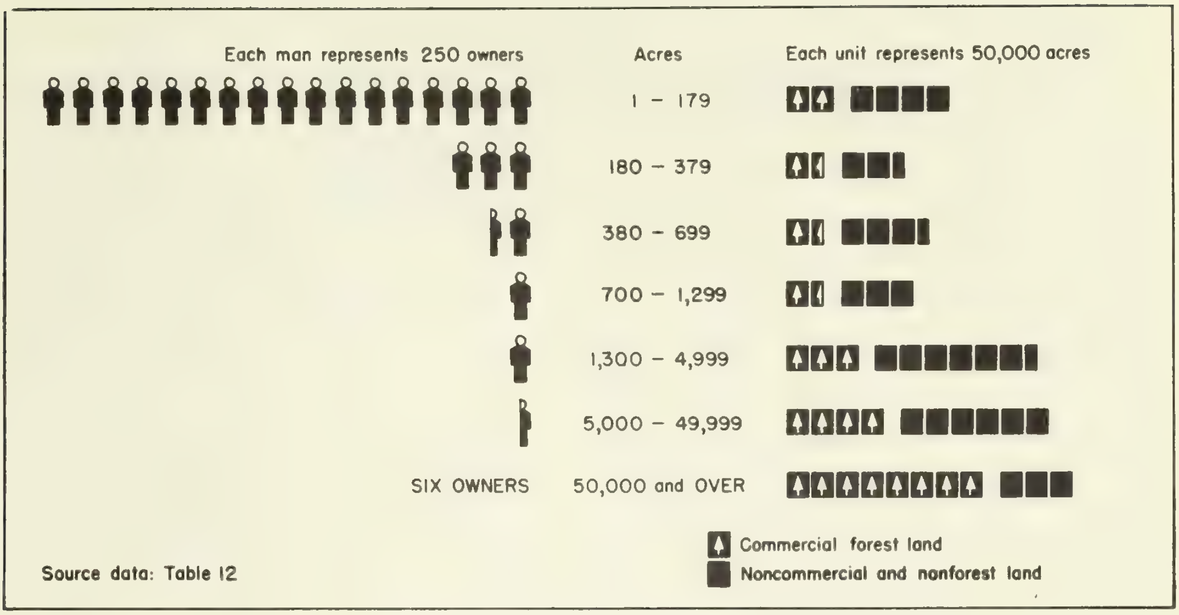

Figure 9.- Number of private owners and acreage owned by size of holding

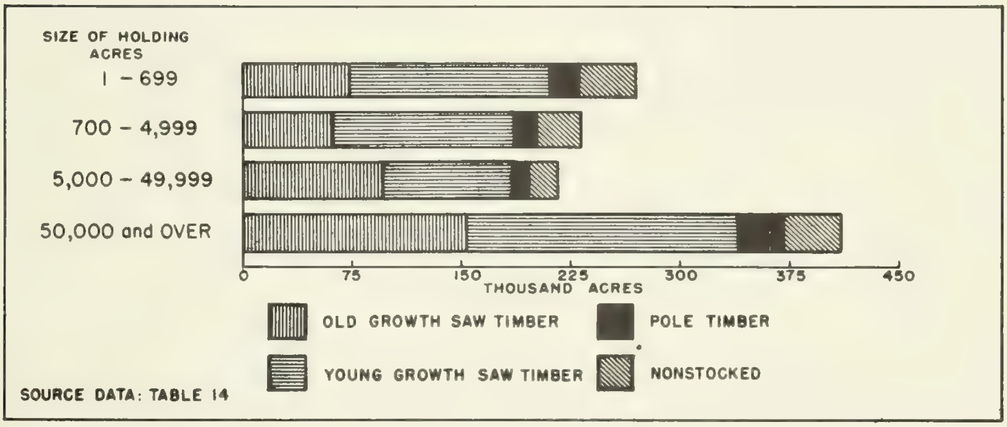

Figure 10.- Commercial forest land by stand-size class and by size of holding

Because of these differences in ownership and use in different parts of the subregion, management of forest land necessarily differs from one area to another. Size of holding is important in any program of forest management designed for continuous production of timber. Large holdings, such as those in Trinity and Siskiyou Counties, generally include sufficient growing stock to support a large forest enterprise. Owners are assured of continuous supplies of timber from their own land and they can therefore invest in the necessary equipment and intensive management practices for good forestry. On the other hand, pressure to liquidate large private timber holdings has come from heavy investments in timber reserves and logging and milling equipment. In some cases, these investments create an annual fixed cost which can be met only by excessive cutting and milling of timber and can be reduced only by decreasing the timber held in reserve.

Although sustained-yield forestry may not be attainable by the owners of small holdings who operate independently, continuous timber operations could perhaps be established by a cooperative arrangement--in logging, milling, and marketing--between a number of these owners. Or, these owners might harvest timber periodically by contracting for its removal and sale according to proper management practices.

Relationship Between Type and Size of Ownership

The largest private ownerships are those of timber holding companies, principally in Shasta, Trinity, and Siskiyou Counties (fig. 11). This class of owner controls 22 percent of all the privately owned land, and 85 percent of this land is in ownership units of 50,000 acres and larger. Some of the land of timber holding companies was obtained as railroad land grants from the Government. Although the individual holdings are large, these ownerships are composed mainly of alternate sections intermingled with sections of national forest and other classes of public and private owners. Because of conflicting policies of the various owners involved and scattered nature of the holdings, the checkerboard patterns formed by these railroad grant holdings aggravate certain problems associated with the management and use of this land. Exchanges of comparable land between the owners of the checkerboard sections have helped alleviate the situation. Further exchanges of land would help to consolidate more of these intermingled holdings.

Timber operating companies also have large ownership units, but considerably less of their land is in holdings as large as those of timber holding companies (table 17). Land of operating companies, however, consists of a higher proportion of commercial forest land. As these owners are actively engaged in the business of logging or milling of timber, apparently they have invested their money in the type of land best suited for their operations--commercial forest land. If managed properly, many of these ownership units are sufficiently large to provide a continuous supply of timber.

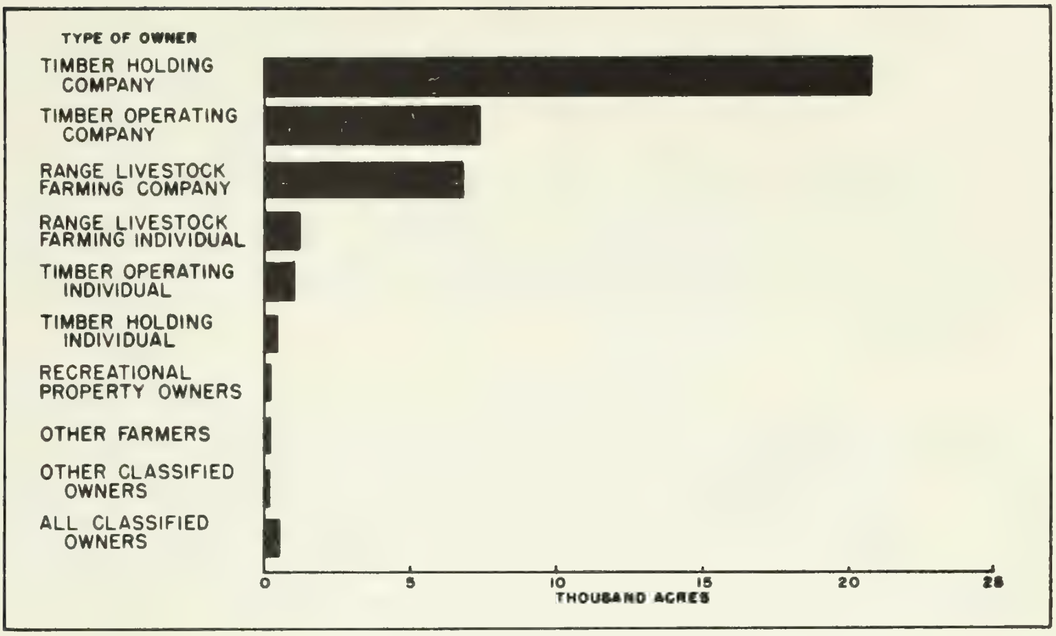

Figure 11.- Average size of holdings of private owners.

Owners of large holdings have usually protected their timber from fire and other hazards and most of their commercial forest land is rather well stocked with saw-timber stands (table 14). Some of these owners hire foresters to assist them in inventorying and managing their land. They also cooperate closely with the Forest Service and the State Division of Forestry. These policies have led to reasonably good management of much of the forest land in the northern part of the study area.

Timber operating and timber holding individuals all have ownerships smaller than 10,000 acres; in fact, a considerable acreage of the land of timber holding individuals is in units smaller than 180 acres. Private individuals engaged in the business of producing lumber and other timber products generally lack the capital with which to buy extensive timber holdings. Consequently, their ownerships are small, and ordinarily their operations are limited to the resources they have available. Like the operating companies, operating individuals usually hold timberland of good quality. Some of these small-scale operators supplement their own supply of timber with that obtained from nearby timber holdings and from the national forests.

This small-ownership pattern of timber holding individuals may be due to several reasons. One of these is probably because the Government originally favored disposal of its land in small parcels. Much forest land also is apparently acquired merely for the sake of owning land and as speculative investments. These owners generally favor small holdings. This condition is similar to that found in a forest land ownership study made in New England.[9] Because many of these small timber holdings remain idle for long periods of time (that is, they are not intentionally managed for timber production or other use), the land does not contribute its full share of production to the economy of the area. Furthermore, the owners generally lack the interest, knowledge, and time to provide proper management for their holdings both at the time of cutting and after the timber has been cut.

Land of range livestock companies is mostly in medium-sized holdings of from 10,000 to 29,999 acres, while land of range livestock farming individuals is in small and medium-sized ownership units of from 380 to 29,999 acres. Livestock farming companies generally have fairly large acreages of range land, intermingled with some forest land, on which cattle and sheep are pastured. These large ranches are usually operated by resident managers who represent the corporate owners in local matters pertaining to the operation of the properties. The main enterprise is ranching, but if there is sufficient timberland on these ranches to warrant special attention, it is sometimes managed for timber production as a secondary enterprise.

Holdings of individual ranchers are generally smaller than those of corporate ranchers. This is chiefly because of the more limited financial resources of the individual rancher. All but a few of the ranches of individuals are operated by the owners. Some of the larger ranches contain considerable acreages of commercial forest land, on which timber is produced sometimes as a secondary enterprise. Timber in the smaller ranches is either given no attention by the owner or is sold to outside timber operators, usually as stumpage. The cut-over land on these smaller ranches is generally used to graze livestock.

The smallest holdings are those of owners of recreational property, non-livestock farmers, and other classified owners. Holdings of recreational owners are generally small because this form of land use does not ordinarily require large acreages of land. Exceptions are the few large dude ranches and commercial recreational enterprises that have fairly large acreages. Recreational land is used principally by the owners. Very little of the timberland on the small recreational holdings is used to produce timber for commercial use.

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[9] Barraclough, Solon and Jas. C. Rettie. The Ownership of Small Private Forest-Land Holdings in 23 New England Towns. Northeastern Forest Exp. Sta., Station Paper No. 34, 32 pp. Upper Darby, Pa. March 1950.

Nonlivestock farmers have mostly small holdings because this type of land use is adaptable to relatively small holdings. Not much of the commercial forest found on these holdings is used to produce timber products commercially. Some of this forest land is cleared for farming if the soil is suitable for cultivation. Otherwise most of it remains idle.

Other classified owners have mostly small holdings because their land is used for residences, mining, roadside commercial enterprises, and other miscellaneous uses that require only small acreages. The timberland on these holdings is generally not managed for production of commercial timber.

Operating Tenure

The number of private ownerships and the acreage of privately owned land were classified into 4 major tenure classes (table 18). This classification shows that 68 percent of the owners used their land for their own operations; 8 percent leased their land to others; 1 percent used part of their land themselves and leased part to others; and 23 percent left their land standing unused (fig. 12).

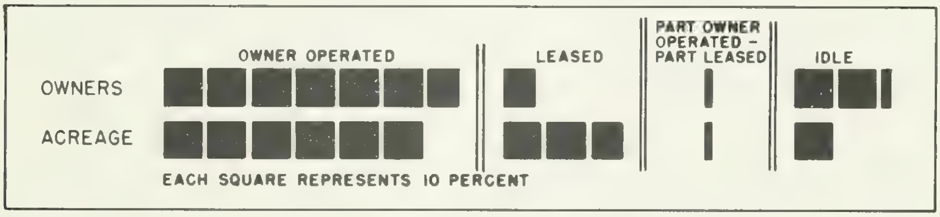

Figure 12.- Percentage distribution of owners and of acreage of private land by tenure.

Range livestock ranchers and farmers, and timber operators used more than 85 percent of their land for their own enterprises. These classes of owners are usually resident operators who have acquired the land to use in their own business which they normally manage themselves. Consequently, not much of their land is leased or allowed to stand idle. Land of ranchers and farmers is used primarily to grow grass for livestock and to produce cultivated crops. Some of their land also grows timber but timber production is secondary to farming.

Timber holding companies leased more than 90 percent of their land to others, the largest percentage of any group. Although this land is held mainly for timber production, it also grows grasses and shrubs valuable for livestock grazing. These owners commonly lease land for grazing. If the land is managed properly, grazing interferes very little with the growing of the timber crop. Portions of these ownerships are sometimes suitable for recreational, residential, and commercial use like hunting clubs, cabin sites, motor courts, and roadside commercial establishments. Rentals received by the owners from leases contribute materially toward payment of taxes, fire protection, and other costs involved in holding land for future timber operations.

The lands in timber holdings are usually leased to nearby ranchers who desire additional grazing land on which to expand their operations. Although the entire forest holding may be included in the lease, only the land suitable for grazing is actually used. This may be only a relatively small part of some holdings.

Nonlivestock farmers and owners of recreational property leased only 5 percent of their land to others. These two classes of owners acquire land principally for their own use. The bulk of the farm lands are used for orchards, vineyards, and similar types of farming which in this State are not commonly carried on by tenants.10/ This probably explains the low percentage of tenant operated farm ownerships.

Recreational owners acquire land mostly for their own use during weekends, holidays, and vacations. Because these holdings are mostly small, they have little value for grazing and for timber production as individual units. Consolidation of these small holdings into tracts of economic size involves complex leasing arrangements and other difficulties of management which discourage their use under lease.

Timber holding individuals allowed three-fourths of their holdings to remain idle. Although this land may grow timber, it also has value for grazing and other nontimber uses. Much of it is in remote locations and in small unfenced holdings. Such land is not very attractive to ranchers and other users. Furthermore, some of the smaller tracts are acquired mainly for resale of land or timber for a quick profit. Consequently, these owners are interested principally in profit from means other than the long-term use of the land itself. Some are nonresident owners who know very little about their land. Usually they let the timber grow unattended.

Leased land was mostly in ownership units of 50,000 acres or larger. No idle holdings were found in size classes of 30,000 acres and larger, but a large number of idle holdings were concentrated in ownership units smaller than 700 acres.

10/ Adams, R. L. and W. H. Smith, Jr. Farm Tenancy in California and Methods of Leasing. Calif. Agr. Expt. Sta. Bul. 655, pp. 82-89. Berkeley. October 1941.

As forest land is leased mainly for livestock grazing, it is most useful when it is in units large enough for that purpose. Apparently the demand for leased land here is in large units. Taxes and other carrying charges on large acreages are probably more of a burden to the owner than carrying charges on smaller holdings. Hence, owners of large holdings may try harder to get some annual returns from their land than do the owners of small tracts.

Lands obtained by purchase, inheritance, and homestead were used mostly by the owners. Holdings acquired by foreclosure and by other methods were mostly leased to others or left idle. Owners who obtain land by purchase, inheritance, or homestead usually have better reasons for using the land themselves than do those who acquire by other methods. This is particularly true of those who buy large holdings. A person who buys a sizable piece of land usually intends to use it for some specific purpose. Consequently, he is less inclined either to rent out his land or to leave it idle. This holds true also for those who homestead land and for some of those who inherit their land, especially if they are resident owners.

How the Land Is Used

Timber operations were carried on as a major business on 85 forest land holdings in 1948 (fig. 13 and tables 4 and 19). In addition to these, 59 other holdings were used for logging operations in combination with other uses, such as ranching and recreation. Of the 85 holdings used for timber operations, 60 were owned by timber operating companies and individuals actually engaged in the business of manufacturing timber products. The other 25 holdings belonged mainly to timber holding companies and individuals who sold their stumpage to others. The 85 forest land holdings used for timber operations amounted to less than 2 percent of all private ownerships. But, because of their large size they included 10 percent of the privately owned land and 20 percent of the privately owned commercial forest land. Most of the logging operations (about 70 percent) were in Siskiyou and Trinity Counties.

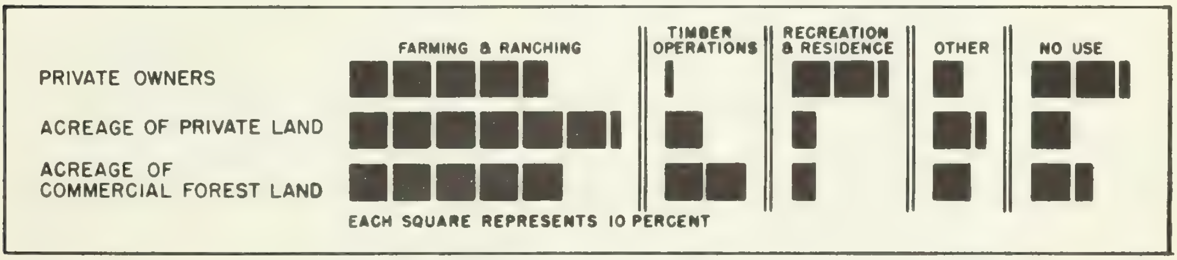

Figure 13.- Percentage distribution of owners and of acreage of private land, by land use.

Table 4.- Private land holdings by major land use and by type of owner, Coast Range Pine Subregion, California, 1948

Type of owner	All uses	Major land use: Timber operations	Farming and ranching	Recreation	Residence	Other uses & combinations of 2 or more uses	No use
	Number of holdings						
Timber operating company	27	24	-	-	-	2	1
Timber holding company	27	7	8	-	-	1	11
Timber operating individual	52	36	-	-	-	10	6
Timber holding individual	186	16	16	-	2	7	145
Range livestock farming company	6	-	4	-	-	2	-
Range livestock farming individual	656	1	515	-	11	112	17
Other farmers	1,966	-	1,836	16	11	92	11
Recreational property owners	926	-	1	641	6	94	184
Other classified owners	1,824	1	249	16	548	107	903
All classified owners	5,670	85	2,629	673	578	427	1,278
Unclassified	28	-	-	-	-	-	-
All owners	5,698	-	-	-	-	-	-

The Coast Range Pine Subregion, according to the 1948 forest resource inventory,[11] embraces a timber-producing capacity and a harvestable volume of timber capable of maintaining both the existing subregion timber industry and some additional operations. Development of access roads--particularly into the timber stands of Siskiyou, Trinity, and northern Lake Counties--and application of adequate management plans will

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[11] Forest Statistics for the Coast Range Pine Subregion in California. op. cit., 48 pp.

Figure 14.- Ranching and farming occur as a major enterprise on most of the private land holdings. These farm ownerships include a large part of the privately owned commercial forest land.

be required. These will make possible the use of much mature and overmature timber that might otherwise be lost through fire, insects, disease, and other causes. Any discussion of the adequacy of the timber resource to provide for an expanded timber industry in the subregion must recognize that some of the wood will go to operations located elsewhere either in the State or outside it.

Ranching and farming are major enterprises on 46 percent of all private land holdings in the subregion. These ranch and farm units include 62 percent of the entire acreage of privately owned land and 51 percent of the privately owned commercial forest land (table 19). Not all of this land, however, is owned exclusively by farmers and ranchers; some is land of nonfarmer owners who lease it to farm operators. For this reason, the acreage in farm use is greater than that actually owned by the farmers themselves, as shown in table 3. Farming also occurs as a minor use in combination with other major uses, such as recreation and timber operations, on an additional 5 percent of the total number of ownership holdings.

The 669 individuals and 6 corporations engaged in range livestock ranching as a major enterprise in 1948, had in their holdings 19 percent of the private commercial forest land which they owned (table 3), plus a substantial acreage leased from nonfarm owners. These range livestock farms are generally found in the foothill country between the agricultural valleys and the higher commercial forest land areas. The commercial forest land in these ranches is usually in tracts of timber intermingled with areas of grass and woodland grass. Most of these tracts of timber were not acquired originally for the value of the timber itself, but were taken along with the grassland areas to block out suitable ranch units. The main interest of these owners is in range, rather than timber enterprises. Hence, they are not likely to give particular attention to the timberland on their holdings and tend to convert this land to nontimber use. Consequently, timberland of this class of owner is not so well stocked with trees as that of the average nonfarm owner of timberland (fig. 6).

The permanent removal of timber and subsequent use of timberland for grazing is justified only when grazing has been proved to be the best economic use in terms of net return to the owner, efficiency of land management, and conservation of the soil and other natural resources. Before timberland on ranches and farms is removed from commercial timber production, a careful land management study should be made to integrate all ranch enterprises into an efficient economic unit. Such a study should consider the future outlook for marketing the various farm and timber products that can be grown satisfactorily on similar land, and the suitability of the soil, climate, and other physical attributes of the land for growing timber, grass, and farm products. Some of this basic work in soil classification and vegetation mapping has been done by Storie and Wieslander in Lake County.12/ Soils were related to natural vegetation and productivity for timber and grass. Valuable information was obtained in this study for use in the management of forest, grazing, and watershed lands, in addition to basic data on forest soils.

As ranchers cut or sell the timber from small tracts adjacent to range land areas, additional acreages of timberland may be converted to range land. If the present high price of Douglas-fir stumpage continues, however, landowners may be more reluctant to convert timberland to nontimber uses than they have been in the past.

Cultivated farming as a major enterprise occurs on more than a third of the total number of privately owned rural properties in the study area. Because of their small size, however, the farms include only 14 percent of all the privately owned land. Most of these farms are in Napa and Lake Counties, where good agricultural land is found

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12/ Storie, R. Earl and A. E. Wieslander. Dominant Soils of the Redwood--Douglas-fir Region of California. Soil Science Proceedings 16(2): 163-167. April 1952.

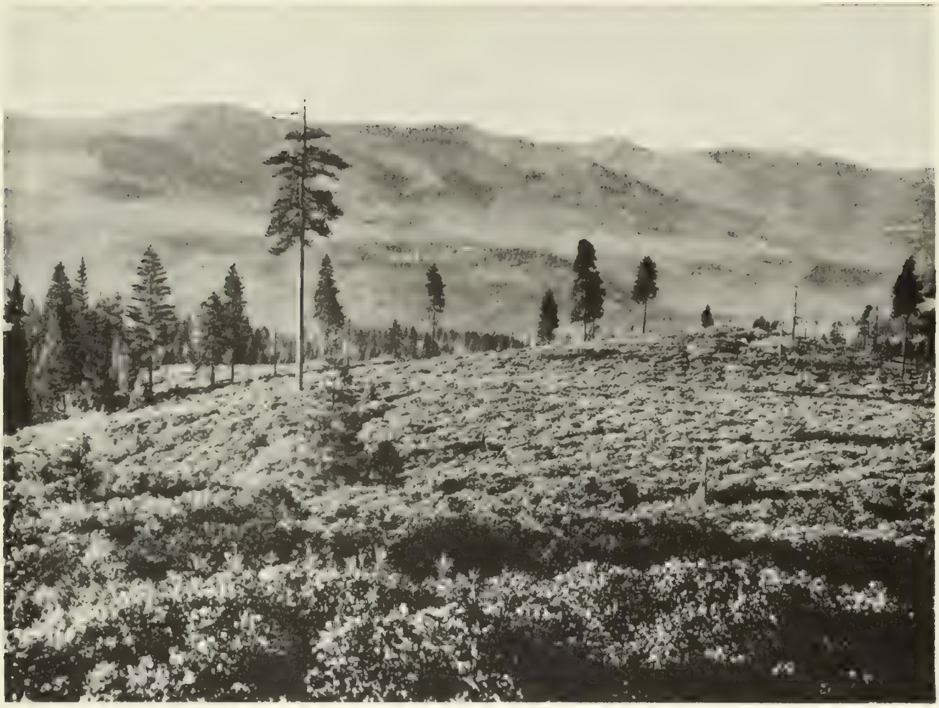

Figure 15.- Commercial forest land of ranchers and farmers has a greater proportion of nonstocked acreage, like that shown above, than does that of other classes of owners.

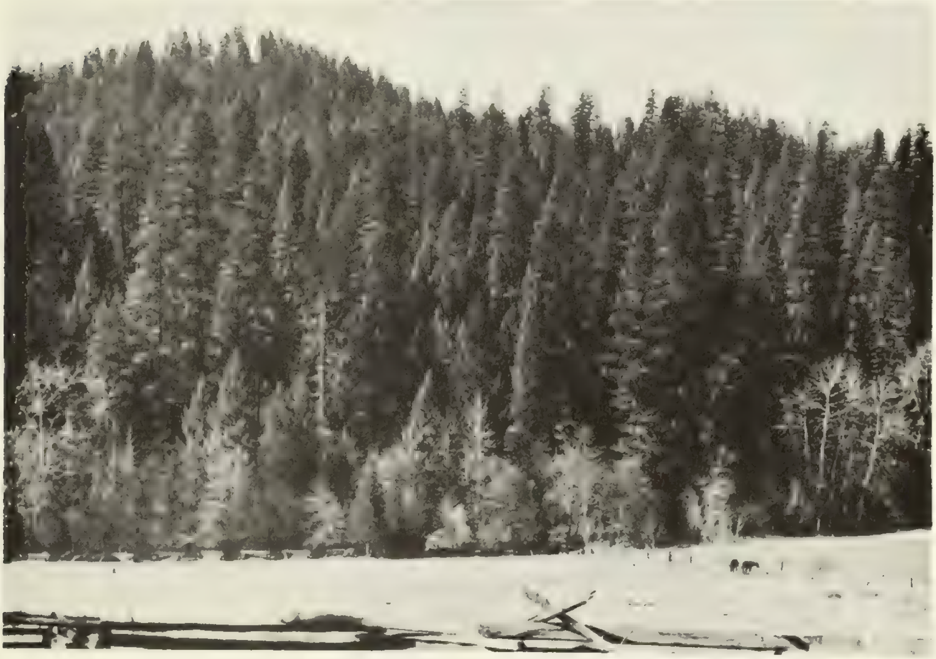

Figure 16.- Commercial forest land in ranch holdings usually lies intermingled with areas of grass and woodland grass.

along the shore of Clear Lake, near Middletown, in Napa Valley, and in several other small inland valleys. Fruit, vineyard, dairy, and poultry are leading types of farming. Prunes, grapes, and other deciduous fruits are grown extensively in Napa Valley, which is known particularly for its dry wines. Lake County is recognized for its Bartlett pears and other deciduous fruits and nuts.

About a fifth of the land of these farmers is commercial forest land. This land is in relatively small tracts, usually of less than 400 acres. It is not used for farming, but if properly managed, it is capable of producing usable stands of commercial timber. Because the owners' interests lie primarily in farming and not in growing timber, much of this forest land is not managed for production of timber. Consequently, it has the highest percentage of nonstocked timberland of any classified ownership group.

Although these small holdings include a relatively small share of the total acreage of commercial forest land, some of these farm holdings might well be managed for timber production. Such operations would provide the farmer with his own supply of wood products for home consumption, and with some added income as well. This timberland is mostly in areas of good roads and near markets. Lumber produced from these holdings can compete favorably with timber products produced elsewhere. Land in these farm holdings may be best used as follows: the farm land for growing farm crops and the commercial timberland for growing forest products if the various enterprises of the farm can be successfully integrated into an efficient economic unit. This requires careful planning and management by the operator of the farm ownership unit.

At the time of this survey, 673 rural land ownerships were devoted exclusively to recreational use and another 578 were used chiefly for residential purposes (table 19). In addition to these, 253 other holdings, most of which are now idle, were acquired for future recreational use. Most of these holdings, too, are in Lake and Napa Counties, where conditions are excellent for recreational and residential use of land by the nearby urban population. The mild, pleasant, healthful climate; the numerous streams and lakes; and the natural beauty of the surrounding country offer ideal conditions for resorts, country homes, dude ranches, and permanent residences patronized by tourists, vacationists, sportsmen, and retired persons. Although these holdings are numerous, they are mostly small tracts (table 20) and include only about 6 percent of all the privately owned land. About two-fifths of this land, however, is growing or is physically capable of growing timber crops.

Any program of forest land management, particularly in the southern part of the area, and in California as a whole, must recognize an increasing trend in recreational use, especially on forest lands that are accessible to large centers of population. A rapid increase in population in the State, shorter hours of work, improved transportation facilities, heavy out-of-State tourist traffic--all these put an ever-increasing pressure on the State's recreational grounds. Therefore, the percentage of commercial forest land in small recreational and residential holdings is likely to increase as time goes on.

Under present conditions, very little use is made of this land except for recreation. Like the timberland in farm holdings, land in recreational and residential units is usually in areas easy to get to and near markets. Furthermore, removing some of the old-growth timber, if done properly, need not impair recreational values. A well-developed plan for using some of the timber from these small holdings would contribute some valuable forest products. At the same time it would reimburse the owners for part of the overhead costs involved in holding and developing recreational land.

Some holdings are made up of many different kinds of land--commercial timberland, grazing land, and farm land. These differences in land types result from natural variations in soil, climate, topography, and other physical factors. Such properties are often used for several different purposes. The land-use pattern of each of these ownerships is likely to be determined by the maximum net returns the owner will get from all enterprises. Use patterns may be influenced by sentiment, custom, zoning, practice of self-sufficiency, and other causes. Common multiple uses are: Ranching and timber operations; farming and recreation; timber operations, ranching, and recreation; and other combinations of these and other uses. In 1948, 427 ownerships containing 12 percent of the total privately owned land were used for multiple purposes. Some of these holdings are fairly large and contain a considerable acreage of good commercial timberland.

In this and most other forest regions of the State considerable land, usually in small holdings, is acquired in many different ways for use at sometime in the future. Many owners pay taxes on this land year after year, but do not accomplish their original purpose in obtaining it. As a result, these properties remain idle for 20 years or more, until the owner dies or decides to sell or give the land to someone else. In 1948, there were approximately 1,278 of these idle properties in the study area. They represented 10 percent of all the privately owned land and 15 percent of the privately owned commercial forest land. Most of these properties are small holdings of less than 180 acres (table 20). Many are isolated in remote, inaccessible areas where the owners hope that some day the county, the State, or some one will build a road to or near their land. Others are speculative purchases of "cheap" property from individuals or at tax sales. Some are inheritances or gifts from relatives who acquired the land years ago but either died or tired of paying taxes before their "dream" was realized. Many of these idle holdings are owned by nonresidents, some of whom have never seen or been able to locate their land.

Good timberland is found on some of these idle holdings. Under management it would produce usable stands of timber. Few of the owners, however, have a real interest in the forest. Consequently, these holdings constitute a serious problem in carrying out active programs of good forest land management in a region. The owners are difficult to locate. When located, they usually lack sufficient interest and funds to spend much effort and money in improving their land. Demonstration areas might help them to see how they might benefit from taking an active interest in their land. This would require a program designed to manage timber on small holdings in such a way that owners can realize some profit from their investment. It should be an inducement to better management.

How Owners Acquired Their Land

The methods by which persons obtain land influence to some extent the way they use and manage the land. Those who buy land directly ordinarily have more positive plans for its use and management than those who acquire it by involuntary means such as foreclosure. A purchaser usually selects land best suited to his particular requirements. This requires planning and effort. He must study the location, quality, and other attributes of the land if he expects to get the most for his money. Finally, he must pay for the land out of whatever financial resources he has. To a purchaser with limited funds, this might be the largest and most important purchase of his career. Because of these and other related factors, purchased land is less likely to be neglected than land acquired by easier, less voluntary means. There are exceptions such as the purchase of small tracts of relatively cheap land by speculators. As their major objective is resale for profit, they may not be concerned with management of the land during the short time they hold it. Purchases of this type, however, normally do not involve much land because the land holdings are generally small.

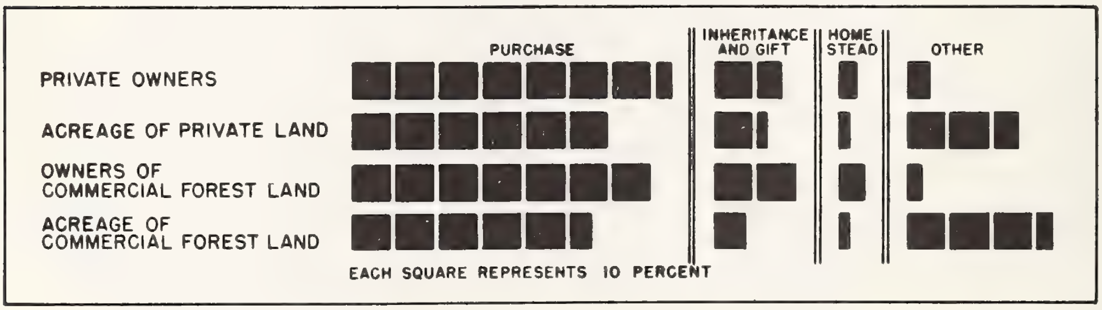

Figure 17.- Percentage distribution of owners and of acreage of private land, by method of acquisition.

About three-fourths of the private owners in this study acquired their land by purchase (fig. 17 and tables 21 and 22). This proportion apparently is about average for forest regions because it is close to that found in the study made in New England.[13]

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[13] Barraclough, S., and J. C. Rettie, op. cit., p. 7.

Purchase was associated most with timber operations, with corporate ownership, and with holdings ranging from 10,000 to 29,000 acres in size. Timber operators require good timberland in relative large acreages if they are to carry on their business successfully. The best way these owners could get land holdings suitable for their enterprises apparently was by purchase. Timber operating companies bought all their land. Timber operating individuals bought all but 2 percent. Land of these two classes of owners consists of the best timberland.

About 17 percent of the landowners obtained their holdings by inheritance and gift. There is probably little difference between acquisition by inheritance and acquisition by gift. Some owners convey some or all of their land to certain heirs when they become too old to manage their properties adequately. In this way some heirs obtain land sooner than they would otherwise, but it is essentially the same land that they would acquire later by inheritance.

Inheritance of land by resident members of the immediate family, in many instances, conveys also the management policies of the original owner. The resident heir often has lived on and helped to manage the land during a part of all of his lifetime. Thus, he has acquired much of the philosophy and management policies of the parent or other relative with whom he has been associated. When the land becomes his, he is likely to continue the management policies of the original owner. His long association with the property gives him a special interest in the inherited property which other classes of owners usually do not have.

Inheritance of land by nonresident heirs usually does not convey to the new owners the management policies of the original owners nor the interest in the land necessary for good management. Consequently, it is less likely that land inherited by nonresident heirs will be treated as well as land acquired by resident heirs or by purchasers.

About 4 percent of the present owners obtained their land by filing original entries with the United States Land Office. These are holdings of "old timers" who have not relinquished their land to others by sale, by gift, or by other means. This method of acquisition was most common among owners of holdings smaller than 700 acres. Homestead laws limiting the size of individual holdings were probably responsible for this. Because they have had these holdings for a long time, these owners have considerable interest in the way the land is managed even if they are not young enough to operate the property themselves.

The rest of the owners obtained their land by other methods. The most common were foreclosures and exchanges. Considerable land was acquired also as railroad grants from the Federal Government.

Large holdings of 50,000 acres or more were generally acquired by two or more different methods (table 23). This was due to consolidation into these large holdings of several smaller tracts obtained at different times by various methods.

Where the Land Owners Are

Landowners were classified as to place of residence from mailing addresses obtained from the county tax rolls. This is a rather general classification, but it furnishes a rough index of degree of interest that might be reflected by the distance the owner must travel to examine his property. It is a generally accepted fact that a person living on or near his property usually manages it differently from one who lives many miles away.[14]

In this study approximately two-thirds of all owners of private land lived or had business headquarters in the same county in which their land was situated (table 5). Because these local residents had somewhat smaller holdings than those outside the county, they controlled less than half of the privately owned acreage. Approximately 31 percent

Table 5.- Number of owners, privately owned land, and privately owned commercial forest land by residence of owner, Coast Range Pine Subregion, California, 1948

Residence of owner	Owners		Av. size of holding	Total land area		Commercial forest land	
	Number	Pct.	Acres	Thousand acres	Pct.	Thousand acres	Pct.
Resident--in the county	3,680	65.4	324	1,194	46.7	373	33.5
Nonresident--outside the county (but within the State)	1,758	31.3	718	1,262	49.4	664	59.6
Nonresident--outside the State	185	3.3	546	101	3.9	77	6.9
	5,623	100.0	455	2,557	100.0	1,114	100.0
Unclassified owners	75	-	1,107	83	-	15	-
All owners	5,698	-	463	2,640	-	1,129	-

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[14] James, L. M., W. P. Hoffman, and M. A. Payne. Private Forest Landownership and Management in Central Mississippi. Miss. Agr. Expt. Sta. Tech. Bul. 33:27. State College. April 1951.

of the total number of owners of private land lived in California but outside the county in which they had their land. Because these owners had larger than average holdings, they controlled half the privately owned acreage of land and three-fifths of the privately owned acreage of commercial forest. Only about 3 percent lived outside the State, but they controlled 7 percent of the privately owned commercial forest land acreage.

The highest degree of absentee ownership was associated with timber holding individuals and timber holding corporations; the lowest, with farm ownership groups. This situation is attributed largely to the different responsibilities of these two groups. Farms normally require intensive supervision by their owners. This is apparently not true of idle timber holdings, particularly when the State provides a certain amount of fire protection. Proper management of timber on these idle holdings, however, usually requires more intensive supervision than it now receives.

A classification of the privately owned acreage of commercial forest land by residence of owner shows that only a third of this land is owned by those who live or have business headquarters within the counties in which they have their timber. Land of residents within the county had the smallest proportion of their timberland left in old-growth saw timber.

Out-of-State residents own a higher share of the acreage of commercial timberland than of all private land. Timberland controlled by these out-of-State owners has the lowest percentage of nonstocked land (fig. 18 and table 24). Apparently these owners have done less cutting of timber than have owners living within the State.

By occupational groups, business executives, white-collar workers, housewives, professionals, and retired persons were most highly associated with nonresident ownership of commercial forest land.

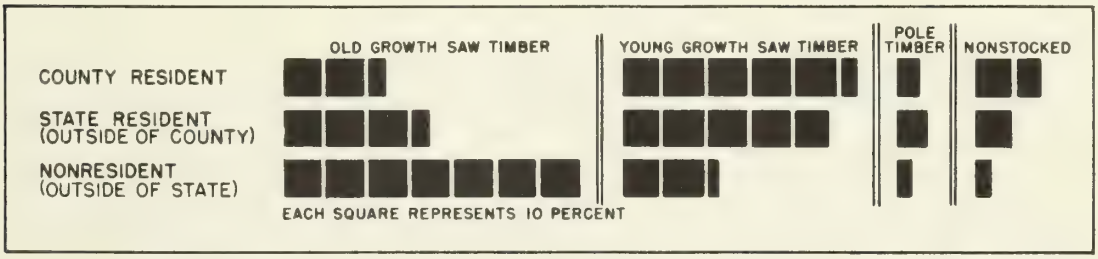

Figure 18.- Percentage distribution of acreage of timberland of resident and nonresident owners, by stand-size class.

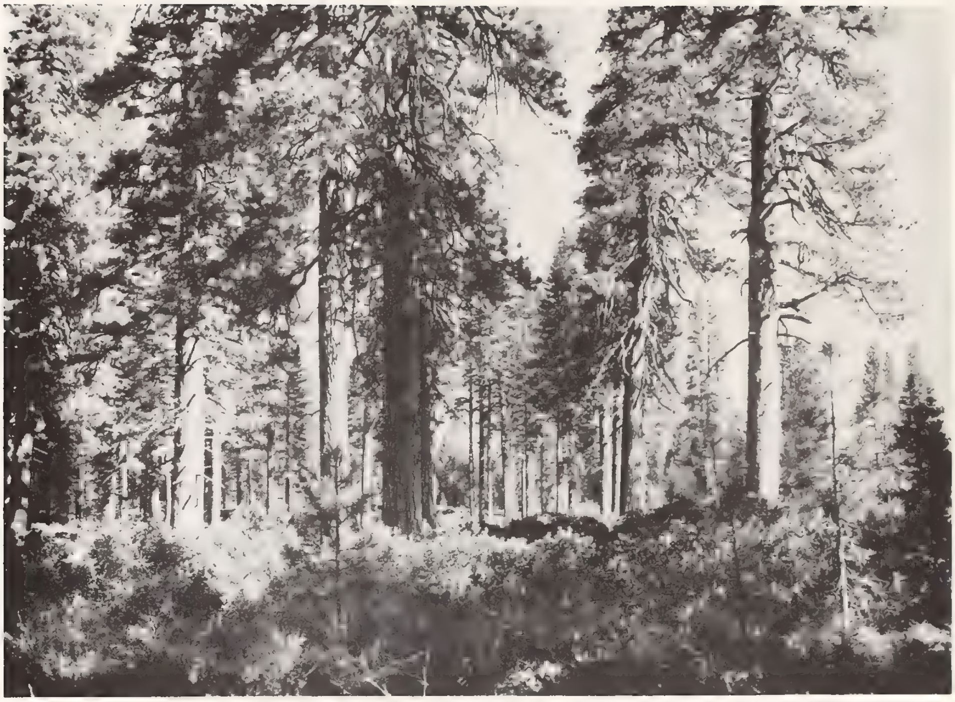

Figure 19.- Holdings of out-of-State nonresident owners, timber holders, and timber operators generally have much land in mature timber stands like that shown here.

Holdings of nonresident owners include a wide range of sizes and types--from small recreational and residential holdings to large timber holding and operating properties. These variations make impossible the prescription of a general set of management practices to cover all nonresidential holdings. In deciding the best use for the available resources, each ownership must therefore be treated as a separate entity. Because these owners live away from their holdings, they frequently overlook the contribution their forest resource could make to themselves and to the local economy. Under good management this contribution could be permanent.

Table 6.- Number of owners, acreage of privately owned land, and privately owned commercial forest land by occupation of owner, Coast Range Pine Subregion, California, 1948

Occupation	Privately owned land				Privately owned commercial forest land			
	Owners		Land area		Owners		Land area	
	Number	Pct.	1,000 acres	Pct.	Number	Pct.	1,000 acres	Pct.
Range livestock farmer	621	14.8	740	32.0	314	18.1	178	17.6
Other farmer	1,624	38.8	312	13.5	463	26.8	64	6.3
Timber operator	79	1.9	252	10.9	76	4.4	220	21.7
Operator of other business	609	14.5	769	33.2	336	19.5	458	45.3
Professional	183	4.4	46	2.0	64	3.7	18	1.8
White-collar worker	67	1.6	8	0.3	40	2.3	3	0.3
Skilled wage earner	296	7.1	34	1.5	141	8.2	10	1.0
Unskilled wage earner	57	1.4	9	0.4	18	1.0	3	0.3
Housewife	71	1.7	14	0.6	35	2.0	5	0.5
Retired	259	6.2	56	2.4	128	7.4	25	2.5
Other	318	7.6	73	3.2	115	6.6	28	2.7
All classified owners	4,184	100.0	2,313	100.0	1,730	100.0	1,012	100.0
Unclassified	1,514	-	327	-	859	-	117	-
All owners	5,698	-	2,640	-	2,589	-	1,129	-

Occupation of Owners

Information pertaining to occupation of owners of private land was obtained for about three-fourths of all owners in the sample. These were classified into 11 major occupational groups as shown in tables 6 and 25. Two separate classifications were made--one for all types of privately owned land, and one for owners of commercial forest land.

According to these classifications, persons and corporations operating their own business control more than two-fifths of the privately owned commercial forest land. The large share of commercial forest land in this occupational class is attributed mostly to business concerns with large acreages of commercial timberland either for speculative purposes or for future timber operations. The remainder are operators of many types of business enterprises, but their holdings are generally smaller. Ranchers and farmers are the next highest group with 24 percent of the privately owned commercial forest land. Considering that their interest is chiefly in agriculture, this group controls quite a sizable portion of this land. Corporations and individuals actively engaged in commercial logging or milling of timber own a fifth of the privately owned commercial timberland.

Smaller proportions of commercial forest land are held by retired persons, professional people, and skilled wage earners. The commercial forest land held by these groups represents mainly investments in timber holdings and recreational and residential properties. Acreages of timberland held by housewives, white-collar workers, and unskilled wage earners are small.

Reasons for Acquiring Land and Plans for Future Use

Popular reasons given for acquiring land in the study area were to engage in farming or ranching, and to use the land for recreation and residence. About half of the owners obtained their land to farm or to raise livestock; a fourth acquired land for recreation and residence; and the remainder to resell the land or the timber at a profit, engage in timber operations, and for other miscellaneous reasons either singly or in combination (fig. 20 and table 26).

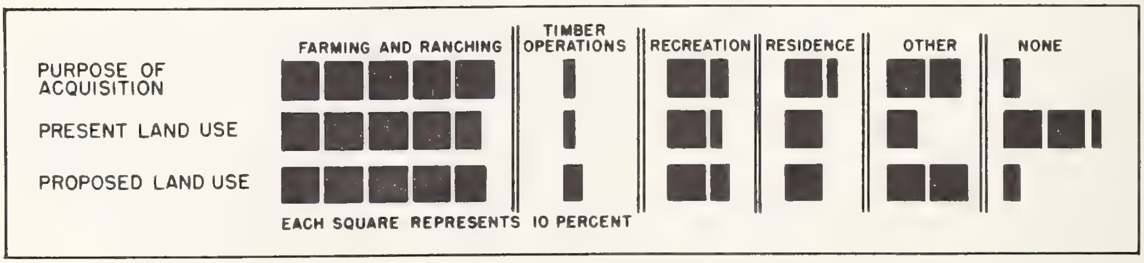

Figure 20.- Percentage distribution of owners of land by purpose of acquisition, and present and proposed land use.

Figure 21.- Recreation and residence are popular reasons for acquiring and holding many small tracts of forest land.

Owners who acquire land for farming and ranching usually obtained holdings smaller than 5,000 acres. Those who acquired land for recreation generally favored holdings smaller than 700 acres, and those who obtained holdings for residential use usually got ownerships smaller than 380 acres. Owners who acquired land for other reasons obtained holdings of all sizes.

Most prevalent present uses of land are timber operations, farming and ranching, recreation, and residence. A fairly large share of the owners have not yet used their land for the purposes for which they originally acquired it. As a result, many holdings remain idle.

Some of those who have not yet used their land apparently still expect to do so if they can. The greatest proportionate increase is expected in use of land holdings for timber operations. The number of owners who plan timber operations in the future is not only higher than the number who originally obtained land for this purpose; but it is also more than twice the number of owners associated with timber operations now. This indicates that timber operations in this subregion will become increasingly active.

APPENDIX

Ownership Survey Procedure

Conventional methods of obtaining data concerning ownership could not be used in this study because of the large acreage involved. Public records, especially those of assessors and tax collectors, provided much reliable basic data of the kind desired. But the existence of county plat maps showing the land of all owners in the county mapped in place made possible the development of the line-sampling technique used.[15] In utilizing these plat maps, parallel lines spaced 2 miles apart were drawn east and west on quadrangle base maps. Then intercepts of ownership boundaries, as shown on the county plat maps, were marked along these lines. The proportion of the total line traversing an ownership class was taken as the proportion of the total acreage in that particular class. The acreage obtained was an estimate of the true area within each ownership class. This acreage was further classified by measuring the intercepts of the various vegetation and timber stand classifications used in the Forest Survey.

Owners of properties traversed by the sample lines composed the ownership sample. The names of these owners were recorded on cards and all their land holdings were listed. Other related information was then obtained from the property tax rolls. These property records gave the address of the owner, and the acreage, legal description, and assessed value of each parcel of land. This information was used to classify private ownerships and land area by size and individual owners by residence.

To learn how the land was used, how and why the present owner acquired it, why he held it, and his principal occupation, each sample owner was mailed a questionnaire. These were simple, return-stamped, self-addressed questionnaire cards which contained a check list on which questions could be answered readily. Complete replies were received from about a third to half of the owners selected in each county. Information pertaining to land of nonrespondents was obtained by a field follow-up, in which key informants were questioned in local public offices and in communities in which the owners had their land.

All ownership and Forest Survey data were edited and placed on punch cards for machine tabulation. Acreages were then totaled by county, and adjusted if necessary to check with the Bureau of the Census acreages by counties.[16] Estimated acreage figures appearing in the tables were compiled and summarized by means of card tabulating equipment.

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[15] Hasel, A. A. and Adon Poli, op. cit., pp. 1-10.

[16] See: Areas of the United States 1940, U. S. Bureau of the Census. U. S. Govt. Print. Off., Washington, D. C.

Accuracy of Estimate

Estimates of land areas in the various ownership categories are subject to two general types of error: (1) Nonsampling errors in mapping, reporting, canvassing, recording, measuring, and compiling the data, and (2) sampling errors which arise from taking a sample rather than making a complete inventory. Errors of the first type were kept to a minimum by frequent checking and close supervision of all phases of the work. If these nonsampling errors are negligible or compensating, then sampling errors provide measures of the reliability of the acreage estimates and can be computed by statistical methods. Magnitudes of the sampling errors depend on the intensity of the sampling and the variability of the data.

Statistics of land areas presented in this report are subject to increasing sampling errors as the class acreages decrease. A partial range of the sampling errors[17] by area class are shown below.

Area in class, acres	Standard error, percent
10,000	± 21.0
20,000	± 14.5
40,000	± 10.5
100,000	± 6.5
200,000	± 4.5
500,000	± 3.0
1,000,000	± 2.0
2,000,000	± 1.5

Definition of Terms

Forest land classes

Forest land. Includes (a) lands which are at least 10 percent stocked by trees of any size and capable of producing timber or other wood products, or of exerting an influence on the climate or on the water regime; (b) lands from which the trees described in (a) have been removed to less than 10 percent stocking and which have not been developed for other use; (c) afforested areas; and (d) chaparral areas.

Commercial forest land. Forest land which is (a) producing, or physically capable of producing, usable crops of wood (usually saw timber), (b) economically available now or prospectively, and (c) not withdrawn from timber utilization.

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[17] For one standard error; that is, the chances are two out of three that the calculated acreages would not differ from the class acreages which would be obtained by 100-percent measurement by more than the errors shown.

Noncommercial forest land. Forest land incapable of yielding usable crops of wood products (usually saw timber) because of adverse site conditions, or so physically inaccessible as to be permanently unavailable economically, or withdrawn from timber utilization and for special use through statute, ordinance, or administrative order.

Nonforest land. Land that does not qualify as forest land. Includes land which has never supported forest growth; land from which the forest has been removed to less than 10 percent stocking and has been developed for other use, such as grazing, agricultural, residential, or industrial; all land in thickly populated urban and suburban areas; and water classified by the Bureau of Census as land.

Timber stand classes

Timber type. An extensive area of commercial forest land characterized by a predominant commercial conifer species[18] or group of commercial conifer species. Other vegetation (such as noncommercial conifers,[19] hardwoods, and chaparral) and nonvegetative types (such as barren areas) may also occur in subordinate amounts within the same area.

a. Pine. Areas with ponderosa, Jeffrey, or sugar pine comprising more than 80 percent of the commercial-conifer cover.

b. Douglas-fir. Areas with Douglas-fir comprising more than 80 percent of the commercial-conifer cover; or mixtures of Douglas-fir and the true firs (white or red) in which Douglas-fir comprises 20 percent or more of the commercial-conifer cover.

c. Fir. Areas with true firs comprising more than 80 percent of the commercial-conifer cover; or mixtures of the true firs and lodgepole pine, mountain hemlock, or western white pine, in which the true firs comprise 20 percent or more of the commercial-conifer cover.

d. Pine--Douglas-fir--Fir. Areas with mixtures of the commercial pines, and either Douglas-fir or the true firs in which the pines, Douglas-fir, and true firs each comprise 20 percent or more of the commercial-conifer cover.

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[18] Commercial conifer species are ponderosa pine, Douglas-fir, sugar pine, Jeffrey pine, true firs (red and white), incense cedar, western white pine, mountain hemlock, and lodgepole pine.

[19] Noncommercial conifer species are knobcone pine, digger pine, juniper, western yew, and California nutmeg.

Density classes of commercial conifer stands on commercial forest land.

a. Dense and semidense. Commercial conifers cover 50 percent or more of the ground space.

b. Open. Commercial conifers cover from 20 to 50 percent of the ground space.

c. Very open. Commercial conifers cover from 5 to 20 percent of the ground space.

d. Nonstocked. Commercial conifers cover less than 5 percent of the ground space.

Stand-size classes

Saw-timber stands. Stands having a minimum net volume per acre of 5,000 board feet, International 1/4-inch rule, in saw-timber trees (11.0 inches d.b.h. and larger for all species).

a. Old-growth saw-timber stands. Saw-timber stands in which more than 50 percent of the net board-foot volume is in mature and overmature saw-timber trees.

b. Young-growth saw-timber stands. Saw-timber stands in which 50 percent or more of the net board-foot volume is in immature saw-timber trees.

Pole-timber stands. Stands failing to meet the saw-timber stand specifications, but at least 10 percent stocked with pole-timber and larger trees and with at least half the minimum stocking in pole-timber trees (5.0 to 10.9 inches d.b.h.).

Seedling and sapling stands. Timber stands not qualifying as either saw-timber or pole-timber stands but having at least half the minimum stocking in seedlings and saplings (0 to 4.9 inches d.b.h.).

Nonstocked areas. Areas of commercial forest land not qualifying as saw-timber, pole-timber, or seedling and sapling stands.

Tree-size classes

Pole-timber trees. Trees 5.0 to 10.9 inches d.b.h. that do not meet the specifications for saw-timber trees but do meet regional specifications of soundness and freedom from defect.

Saw-timber trees. Trees that contain at least one merchantable sawlog as defined by regional practice, which meet the specifications of soundness and defect as indicated under cull trees, and which are at least 11.0 inches d.b.h. all species.

Miscellaneous definitions

Annual timber mortality. The net volume removed from live saw timber or growing stock on commercial forest land during a specified year through death from natural causes, but not as the result of catastrophes.

Commodity drain. The volume of live saw timber or growing stock removed from commercial forest land during a specified year as timber products and logging waste.

Cull trees. Live trees of saw-timber or pole-timber size that are unmerchantable for sawlogs now or prospectively because of defect or rot.

> In commercial conifer species, a tree is considered a complete cull if less than 25 percent of the gross board-foot scale is in merchantable material.
>
> In hardwood species, a tree is considered cull if less than 40 percent of the gross scale in board feet is in merchantable material.
>
> Trees that are culls on a board-foot basis are also considered culls on a cubic foot basis.

International 1/4-inch log rule. A rule for estimating the board-foot volume of 4-foot log sections, according to the formula $V = 0.905 (0.22D^2 - 0.71D)$. The taper allowance for computing the volume in log lengths greater than 4 feet is 0.5 inch per 4-foot section. Allowance for saw kerf is 1/4 inch.

Live saw-timber volume. Net volume in board feet, International 1/4-inch rule, of live saw-timber trees.

Logging waste. The volume of live saw timber or growing stock cut or killed by logging on commercial forest land and not converted to timber products.

Net annual growth. The change during a specified year in the net volume of live saw timber or growing stock on commercial forest land resulting from natural causes exclusive of catastrophic losses.

Detailed Statistics

Table 7.- Major classes of land by type of owner, Coast Range Pine Subregion, California, 1948

Type of owner	Total land area		Major classes of land: Commercial forest land		Noncommercial forest land	Nonforest land
	Thousand acres	Pct.	Thousand acres	Pct.	Thousand acres	
National Forest	3,119	49.3	1,896	59.2	1,154	69
Indian land	29	0.5	14	0.4	8	7
Other Federal	450	7.1	108	3.4	328	14
State Park	2	-	-	-	2	-
State Forest	(1/)	-	(1/)	-	-	-
Tax deeded	75	1.2	50	1.6	23	2
Other State	12	0.2	4	0.1	8	-
County and municipal	3	-	1	-	2	(1/)
Total public	3,690	58.3	2,073	64.7	1,525	92
Timber operating company	200	3.2	175	5.5	21	4
Timber holding company	558	8.8	386	12.0	164	8
Timber operating individual	52	0.8	45	1.4	5	2
Timber holding individual	68	1.1	53	1.7	14	1
Range livestock farming company	40	0.6	15	0.5	15	10
Range livestock farming individual	792	12.5	198	6.2	424	170
Other farmers	363	5.7	74	2.3	151	138
Recreational property owners	180	2.9	74	2.3	93	13
Other classified owners 2/	323	5.1	107	3.3	170	46
Unclassified owners 3/	64	1.0	2	0.1	22	40
Total private	2,640	41.7	1,129	35.3	1,079	432
All types	6,330	100.0	3,202	100.0	2,604	524

1/ Less than 500 acres.

2/ All other land owners whose classification is known but does not logically fit the classes listed above. Examples are owners of land held for residential purposes only, mining claims, watersheds, and reservoir sites.

3/ Small urban, suburban, and industrial ownerships that are too small to map and classify properly, and ownerships that for other reasons cannot be classified and placed in appropriate categories.

Table 8.- Commercial forest land by timber type and by type of owner, Coast Range Pine Subregion, California, 1948

Type of owner	Private holdings	All types	Timber type: Pine	Douglas-fir	Fir	Pine--Douglas-fir--Fir
	Number	Thousand acres				
National Forest	-	1,896	64	336	62	1,434
Indian land	-	14	1	3	-	10
Other Federal	-	108	21	10	1	76
State Forest	-	(1/)	-	(1/)	-	-
Tax deeded	-	50	4	4	1	41
Other State	-	4	(1/)	-	-	4
County and municipal	-	1	-	-	-	1
Total public	-	2,073	90	353	64	1,566
Timber operating company	26	175	19	-	2	154
Timber holding company	27	386	28	13	19	326
Timber operating individual	50	45	7	4	2	32
Timber holding individual	180	53	2	6	-	45
Range livestock farming company	6	15	6	1	-	8
Range livestock farming individual	338	198	15	45	(1/)	138
Other farmers	583	74	21	20	2	31
Recreational property owners	514	74	12	16	-	46
Other classified owners	860	107	13	17	1	76
Unclassified	5	2	(1/)	1	-	1
Total private	2/2,589	1,129	123	123	26	857
All owners	-	3,202	213	476	90	2,423

1/ Less than 500 acres.

2/ This figure represents only those private holdings with commercial forest land.

Table 9.- Commercial forest land by stand-size class and by type of owner, Coast Range Pine Subregion, California, 1948

Type of owner	All classes	Stand-size class of timber			
		Old growth saw timber	Young growth saw timber	Pole timber	Non-stocked
	Thousand acres				
National Forest	1,896	1,001	646	75	174
Indian land	14	5	7	1	1
Other Federal	108	26	48	12	22
State Forest	(1/)	-	(1/)	-	-
Tax deeded	50	24	17	4	5
Other State	4	3	1	-	(1/)
County and municipal	1	(1/)	1	-	-
Total public	2,073	1,059	720	92	202
Timber operating company	175	79	74	14	8
Timber holding company	386	161	171	19	35
Timber operating individual	45	17	24	2	2
Timber holding individual	53	25	24	2	2
Range livestock farming company	15	2	9	1	3
Range livestock farming individual	198	43	101	14	40
Other farmers	74	9	41	7	17
Recreational property owners	74	14	44	7	9
Other classified owners	107	27	58	7	15
Unclassified	2	(1/)	1	(1/)	1
Total private	1,129	377	547	73	132
All owners	3,202	1,436	1,267	165	334

1/ Less than 500 acres.

Table 10.- Commercial forest land by density of timber stand and by type of owner, Coast Range Pine Subregion, California, 1948

Type of owner	All densities	Density of timber stand: Dense	Semi-dense	Open	Very open	Non-stocked
	Thousand acres					
National Forest	1,896	347	561	575	239	174
Indian land	14	(1/)	5	5	3	1
Other Federal	108	9	27	33	17	22
State Forest	(1/)	-	(1/)	-	(1/)	-
Tax deeded	50	3	11	21	10	5
Other State	4	-	1	2	1	(1/)
County and municipal	1	(1/)	1	(1/)	-	-
Total public	2,073	359	606	636	270	202
Timber operating company	175	38	47	62	20	8
Timber holding company	386	60	95	146	50	35
Timber operating individual	45	7	9	19	8	2
Timber holding individual	53	11	15	16	9	2
Range livestock farming company	15	2	3	2	5	3
Range livestock farming individual	198	16	47	50	45	40
Other farmers	74	6	10	26	15	17
Recreational property owners	74	7	17	24	17	9
Other classified owners	107	15	20	31	26	15
Unclassified	2	-	(1/)	(1/)	1	1
Total private	1,129	162	263	376	196	132
All owners	3,202	521	869	1,012	466	334

1/ Less than 500 acres.

Table 11.- Net volume of live saw timber on commercial forest land by type of owner, Coast Range Pine Subregion, California, 1948

Type of owner	Area	Volume	Average volume per acre
	Thousand acres	Million bd. ft.	Bd. ft.
National Forest	1,896	39,965	21,078
Indian land	14	228	16,286
Other Federal	108	1,577	14,602
State Forest	(1/)	2	18,518
Tax deeded	50	882	17,640
Other State	4	85	21,250
County and municipal	1	29	29,000
Total public	2,073	42,768	20,631
Timber operating company	175	3,668	20,960
Timber holding company	386	7,405	19,184
Timber operating individual	45	895	19,889
Timber holding individual	53	1,126	21,245
Range livestock farming company	15	206	13,733
Range livestock farming individual	198	2,728	13,778
Other farmers	74	1,028	13,892
Recreational property owners	74	1,090	14,730
Other classified owners	107	1,639	15,318
Unclassified	2	1	500
Total private	1,129	19,786	17,525
All owners	3,202	62,554	19,536

1/ Less than 500 acres.

Table 12.- Number of holdings, privately owned land, and privately owned commercial forest land by size of holding, Coast Range Pine Subregion, California, 1948

Size of holding	Holdings		Total land area		Commercial forest land	
					Percent of total acreage	Pct. of all land in each size class
Acres	Number	Pct.	Thousand acres	Pct.		
1 - 179	4,135	72.6	325	12.6	10.4	35.7
180 - 379	674	11.8	214	8.3	6.7	35.0
380 - 699	358	6.3	251	9.8	7.1	31.5
700 - 1,299	246	4.3	226	8.8	6.2	31.0
1,300 - 2,599	150	2.6	252	9.8	7.3	32.5
2,600 - 4,999	71	1.2	229	8.9	7.1	34.5
5,000 - 9,999	37	0.6	182	7.1	7.2	44.5
10,000 - 29,999	18	0.4	196	7.7	6.1	34.7
30,000 - 49,999	3	0.1	125	4.9	5.7	51.2
50,000 and over	6	0.1	567	22.1	36.2	71.6
All classified owners	5,698	100.0	2,567	100.0	100.0	43.6

Table 13.- Number of owners and privately owned commercial forest land by timber type and by size of holding, Coast Range Pine Subregion, California, 1948

Size of holding[1]	Owners	All types	Timber type			
			Pine	Douglas-fir	Fir	Pine--Douglas-fir--Fir
Acres	Number	Thousand acres				
1 - 179	1,720	116	14	26	1	75
180 - 379	372	75	9	22	-	44
380 - 699	184	79	15	7	1	56
700 - 1,299	131	70	13	9	2	46
1,300 - 2,599	90	82	6	16	1	59
2,600 - 4,999	49	79	14	6	-	59
5,000 - 9,999	21	81	3	14	-	64
10,000 - 29,999	13	68	8	11	([2])	49
30,000 - 49,999	3	64	-	8	-	56
50,000 and over	6	406	39	1	21	345
Unclassified	-	9	2	3	-	4
All owners	2,589	1,129	123	123	26	857

[1] Size of holdings is based on total acreage of all kinds of land owned, only part of which may be commercial forest land.

[2] Less than 500 acres.

Table 14.- Privately owned commercial forest land by stand-size class and by size of holding, Coast Range Pine Subregion, California 1948

Size of holding	All classes	Stand-size class of timber: Old growth saw timber	Young growth saw timber	Pole timber	Non-stocked
Acres	-----	-----	Thousand acres	-----	-----
1 - 179	116	32	59	8	17
180 - 379	75	17	42	3	13
380 - 699	79	22	38	6	13
700 - 1,299	70	14	38	8	10
1,300 - 2,599	82	17	46	4	15
2,600 - 4,999	79	30	39	4	6
5,000 - 9,999	81	36	32	4	9
10,000 - 29,999	68	17	38	3	10
30,000 - 49,999	64	40	21	2	1
50,000 and over	406	151	188	30	37
All classified owners	1,120	376	541	72	131
Unclassified	9	1	6	1	1
All owners	1,129	377	547	73	132

Table 15.- Privately owned commercial forest land by density of timber stand and by size of holding, Coast Range Pine Subregion, California, 1948

Size of holding	All densities	Density of timber stand				
		Dense	Semi-dense	Open	Very open	Non-stocked
Acres	Thousand acres					
1 - 179	116	16	21	40	21	18
180 - 379	75	10	16	23	13	13
380 - 699	79	7	14	25	20	13
700 - 1,299	70	8	18	18	17	9
1,300 - 2,599	82	10	18	23	16	15
2,600 - 4,999	79	6	17	30	20	6
5,000 - 9,999	81	18	25	20	9	9
10,000 - 29,999	68	11	15	19	13	10
30,000 - 49,999	64	13	17	24	9	1
50,000 and over	406	63	100	152	54	37
All classified owners	1,120	162	261	374	192	131
Unclassified	9	(1/)	2	2	4	1
All owners	1,129	162	263	376	196	132

1/ Less than 500 acres.

Table 16.- Net volume of live saw timber on privately owned commercial forest land by size of holding, Coast Range Pine Subregion, California, 1948

Size of holding	Area	Volume	Average volume per acre
Acres	Thousand acres	Million bd. ft.	Bd. ft.
1 - 179	116	1,913	16,491
180 - 379	75	1,226	16,347
380 - 699	79	1,201	15,202
700 - 1,299	70	1,016	14,514
1,300 - 2,599	82	1,223	14,915
2,600 - 4,999	79	1,277	16,164
5,000 - 9,999	81	1,749	21,592
10,000 - 29,999	68	1,132	16,647
30,000 - 49,999	64	1,555	24,297
50,000 and over	406	7,403	18,234
Unclassified	9	91	10,111
All owners	1,129	19,786	17,525

Table 17.- Percentage distribution of privately owned land by type and size of holding, Coast Range Pine Subregion, California, 1948

Type of owner	All sizes		Size of holding (acres)									
			1-179	180-379	380-699	700-1299	1300-2599	2600-4999	5000-9999	10,000-29,999	30,000-49,999	50,000 & over
	1,000 acres	Pct.	Percent									
Timber operating company	200	100.0	1.0	--	1.0	0.5	2.0	8.0	17.0	6.5	17.0	47.0
Timber holding company	558	100.0	--	1.1	0.2	0.2	2.3	1.8	2.0	2.7	5.0	84.7
Timber operating individual	52	100.0	3.8	3.8	11.6	17.3	15.4	30.8	17.3	--	--	--
Timber holding individual	68	100.0	28.0	8.8	16.2	2.9	11.8	19.1	13.2	--	--	--
Range livestock farming company	40	100.0	--	--	--	7.5	12.5	--	--	80.0	--	--
Range livestock farming individual	792	100.0	2.7	4.0	10.1	12.3	15.5	17.9	12.6	16.9	8.0	--
Other farmers	363	100.0	33.0	23.7	19.8	12.7	8.3	2.5	--	--	--	--
Recreational property owners	180	100.0	34.4	19.4	17.8	17.8	6.7	3.9	--	--	--	--
Other classified owners	323	100.0	31.5	15.0	15.0	11.1	15.6	5.1	6.1	0.6	--	--
All classified owners	2,576	100.0	12.7	8.3	9.8	8.8	9.8	8.9	7.1	7.6	4.9	22.1

Table 18.- Number of holdings and privately owned land by operating tenure and by type of owner, Coast Range Pine Subregion, California, 1948

Type of owner	All tenures		Operating tenure							
			Owner-operated		Leased		Part owner-operated & part leased		Idle	
	Holdings	Land area	Holdings	Land area	Holdings	Land area	Holdings	Land area	Holdings	Land area
	Number	1,000 acres	Number	1,000 acres	Number	1,000 acres	Number	1,000 acres	Number	1,000 acres
Timber operating company	27	200	26	196	--	--	--	--	1	4
Timber holding company	26	555	3	3	10	508	1	3	12	41
Timber operating individual	51	51	44	45	1	3	1	2	5	1
Timber holding individual	186	64	18	6	20	10	4	(1/)	144	48
Range livestock farming company	6	40	6	40	--	--	--	--	--	--
Range livestock farming individual	668	792	617	721	21	47	13	19	17	5
Other farmers	1,959	358	1,846	326	76	18	21	12	16	2
Recreational property owners	926	180	684	134	15	9	17	7	210	30
Other classified owners	1,765	310	594	72	278	96	21	6	872	136
All classified owners	5,614	2,550	3,838	1,543	421	691	78	49	1,277	267
Unclassified	84	90	--	--	--	--	--	--	--	--
All owners	5,698	2,640	--	--	--	--	--	--	--	--

1/ Less than 500 acres.

Table 19.- Number of holdings, privately owned land, and privately owned commercial forest land by major land use, Coast Range Pine Subregion, California, 1948

Major land use	Holdings			Total land area		Commercial forest land	
						Pct. of total acreage	Pct. of all land in each major use
	Number	Pct.	Av. size acres	1,000 acres	Pct.		
Timber operations	85	1.5	2,976	253	9.9	19.7	87.7
Farming and ranching	2,629	46.4	607	1,595	62.3	50.8	35.9
Recreation	673	11.9	178	120	4.7	4.8	45.0
Residence	578	10.2	52	30	1.2	1.0	36.7
Other uses and combinations of 2 or more uses	427	7.5	691	295	11.5	9.1	34.9
No use	1,278	22.5	209	267	10.4	14.6	61.8
All classified owners	5,670	100.0	451	2,560	100.0	100.0	44.1
Unclassified	28	-	-	80	-	-	2.5
All owners	5,698	-	-	2,640	-	-	42.8

Table 20.- Private land holdings by major land use and by size of holding, Coast Range Pine Subregion, California, 1948

Size of holding	All uses	Major land use						
		Timber operations	Farming and ranching	Recreation	Residence	Other uses and combinations of 2 or more uses	No use	Unclassified
Acres	Number of holdings							
1 - 179	4,135	39	1,676	540	555	266	1,047	12
180 - 379	674	2	397	81	15	57	115	7
380 - 699	358	8	207	27	7	37	63	9
700 - 1,299	246	6	170	20	1	28	21	-
1,300 - 2,599	150	9	98	3	-	21	19	-
2,600 - 4,999	71	10	43	2	-	8	7	1
5,000 - 9,999	37	6	22	-	-	5	4	-
10,000 - 29,999	18	1	12	-	-	4	1	-
30,000 - 49,999	3	1	1	-	-	1	-	-
50,000 and over	6	3	3	-	-	-	-	-
All owners	5,698	85	2,629	673	578	427	1,277	29

Table 21.- Number of holdings and privately owned land by method of acquisition and by type of owner, Coast Range Pine Subregion, California, 1948

Type of owner	All methods		Method of acquisition							
			Purchase		Homestead		Inheritance and gift		Other methods & combinations of 2 or more methods	
	Holdings	Land area	Holdings	Land area	Holdings	Land area	Holdings	Land area	Holdings	Land area
	Number	1,000 acres	Number	1,000 acres	Number	1,000 acres	Number	1,000 acres	Number	1,000 acres
Timber operating company	27	200	27	200	-	-	-	-	-	-
Timber holding company	27	558	22	57	-	-	-	-	5	501
Timber operating individual	52	52	45	51	4	1	2	(1/)	1	(1/)
Timber holding individual	186	64	145	45	7	4	30	10	4	5
Range livestock farming company	6	40	5	17	-	-	1	23	-	-
Range livestock farming individual	669	792	431	541	23	11	118	110	97	130
Other farmers	1,944	359	1,489	244	46	12	345	88	64	15
Recreational property owners	926	180	751	138	71	4	81	24	23	14
Other classified owners	1,777	315	1,258	219	56	7	374	55	89	34
All classified owners	5,614	2,560	4,173	1,512	207	39	951	310	283	699
Unclassified	84	80	-	-	-	-	-	-	-	-
All owners	5,698	2,640	-	-	-	-	-	-	-	-

1/ Less than 500 acres.

Table 22.- Number of holdings and privately owned commercial forest land by method of acquisition and by type of owner, Coast Range Pine Subregion, California, 1948

Type of owner	All methods		Method of acquisition							
			Purchase		Homestead		Inheritance and gift		Other methods and combinations of 2 or more methods	
	Holdings	Land area	Holdings	Land area	Holdings	Land area	Holdings	Land area	Holdings	Land area
	Number	1,000 acres	Number	1,000 acres	Number	1,000 acres	Number	1,000 acres	Number	1,000 acres
Timber operating company	26	175	26	175	-	-	-	-	-	-
Timber holding company	27	385	22	52	-	-	-	-	5	333
Timber operating individual	50	45	43	43	4	1	2	(1/)	1	1
Timber holding individual	179	51	141	36	7	3	27	8	4	4
Range livestock farming company	6	15	5	9	-	-	1	6	-	-
Range livestock farming individual	338	198	208	135	15	3	76	35	39	25
Other farmers	574	73	404	50	25	3	119	18	26	2
Recreational property owners	514	74	395	57	62	1	38	10	19	6
Other classified owners	825	102	509	69	28	4	250	20	38	9
All classified owners	2,539	1,118	1,753	626	141	15	513	97	132	380
Unclassified	50	11	-	-	-	-	-	-	-	-
All owners	2,589	1,129	-	-	-	-	-	-	-	-

1/ Less than 500 acres.

Table 23.- Privately owned land by method of acquisition and by size of holding, Coast Range Pine Subregion, California, 1948

Size of holding	All methods	Method of acquisition			
		Purchase	Homestead	Inheritance & gift	Other methods & combinations of 2 or more methods
Acres	Thousand acres				
1 - 179	326	251	13	54	8
180 - 379	214	150	7	41	16
380 - 699	247	155	10	60	22
700 - 1,299	226	152	3	34	37
1,300 - 2,599	252	174	4	39	35
2,600 - 4,999	225	158	2	26	39
5,000 - 9,999	182	121	-	32	29
10,000 - 29,999	196	159	-	24	13
30,000 - 49,999	125	97	-	-	28
50,000 and over	567	95	-	-	472
All classified owners	2,560	1,512	39	310	699
Unclassified	80	-	-	-	-
All owners	2,640	-	-	-	-

Table 24.- Privately owned commercial forest land by stand-size class and by residence of owner, Coast Range Pine Subregion, California, 1948

Residence of owner	All classes	Stand-size class of timber: Old growth saw timber	Young growth saw timber	Pole timber	Non-stocked
	Thousand acres				
Resident in the county	373	93	201	24	55
Nonresident -- outside the county (but within the State)	664	225	321	45	73
Nonresident outside the State	77	54	17	3	3
All classified owners	1,114	372	539	72	131
Unclassified owners	15	5	8	1	1
All owners	1,129	377	547	73	132

Table 25.- Privately owned commercial forest land by stand-size class and by occupation of owner, Coast Range Pine Subregion, California, 1948

Occupation	All classes	Stand-size class of timber: Old growth saw timber	Young growth saw timber	Pole timber	Non-stocked
	---------- Thousand acres ----------				
Range livestock farmer	178	41	88	11	38
Other farmer	64	9	34	6	15
Timber operator	220	96	98	16	10
Operator of other business	458	176	215	24	43
Professional	18	4	9	2	3
White-collar worker	3	1	2	(1/)	(1/)
Skilled wage earner	10	2	6	1	1
Unskilled wage earner	3	1	1	-	1
Housewife	5	2	3	(1/)	(1/)
Retired	25	7	13	2	3
Other	28	8	16	1	3
All classified owners	1,012	347	485	63	117
Unclassified	117	29	63	9	16
All owners	1,129	376	548	72	133

1/ Less than 500 acres.

Table 26.- Private land holdings by purpose of acquisition, by present land use, and by proposed land use, Coast Range Pine Subregion, California, 1948

Major land use	Purpose of acquisition		Present land use		Proposed land use	
	Number	Pct.	Number	Pct.	Number	Pct.
Timber operations	119	2.2	85	1.5	197	3.6
Farming and ranching	2,788	51.5	2,629	46.4	2,651	48.8
Recreation	730	13.5	673	11.9	684	12.6
Residence	630	11.6	578	10.2	574	10.5
Other uses and combinations of 2 or more uses	956	17.6	427	7.5	1,135	20.9
No use	193	3.6	1,277	22.5	194	3.6
All classified owners	5,416	100.0	5,669	100.0	5,435	100.0
Unclassified	282	-	29	-	263	-
All owners	5,698	-	5,698	-	5,698	-